# Item A

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
File:

February 16, 2010

Ms. Alexis Strauss, Director
Water Division (WTR-1)
U.S. Environmental Protection Agency, region IX
75 Hawthorne Street
San Francisco, California 94105-3901

Dear Ms. Strauss,

Hawaii Water Quality Standards for Chlordane and Dieldrin

The State of Hawaii has again amended its water quality standards and formally seeks the approval of the U.S. Environmental Protection Agency (EPA).

Amendments to and compilation of Hawaii Administrative Rules Chapter 11-54, Water Quality Standards were adopted by the State of Hawaii Department of Health (DOH) on May 27, 2009, following a public hearing held on April 27, 2009. These amendments, approved by Governor Linda Lingle on January 25, 2010, include revisions to the State's specific criteria in section 11-54-4, toxic pollutant fish consumption criteria for chlordane and dieldrin. We request that the EPA review and approve these revised water quality standards under section 303(c) of the Clean Water Act (CWA) and its implementing regulations, 40 CFR Part 131.

Enclosed for EPA review are the new administrative rules and their supporting documentation (including the Rationale for Proposed Revisions, Notice of Public Hearing, public hearing sign-in sheets, six written comments received, and a Responsiveness Summary). As explained in these enclosures, the State has determined that the revised numeric criteria are sufficient to protect human health by ensuring that they are based on CWA Section 304(a) guidance. The State Deputy Attorney General approved the amended rules as to form, confirming that the State has followed its legal procedures for revising standards.

We wish to emphasize that the pertinent EPA research and guidance for developing these criteria provides scientifically-defensible support and policy-based support for the conclusion that it is reasonable for DOH to employ the national bioaccumulation factors, bioconcentration factors, and average fish consumption rate in revising the toxic pollutant criteria. Over twenty years of new scientific knowledge about the cancer potency of chlordane and dieldrin has lowered our confidence in the previous DOH risk-based decision that established the existing toxic pollutant

criteria, and we have reevaluated and rejected the Hawaii-specific fish consumption factor used to develop the existing Hawaii criteria. For example, the Hawaii fish consumption rate used for the existing rule includes fish imported from out of state. Nonetheless, even if the average fish consumption rate for Hawaii was ten times greater than that used to develop the proposed standards (i.e. 175 g/day or about 6 ounces/day), the risk would fall within EPA's acceptable cancer risk range. In fact, people would have to eat about 3.86 pounds per day of fish, taken from state waters with maximum pollutant concentrations, every day for 70 years to exceed the $10^{-4}$ excess cancer risk that is acceptable under EPA's recommended criteria. Based on the multiple lines of evidence presented in support of our proposed changes to the criteria, we conclude that the difference between the existing and proposed criteria, and between the existing (19.6 g/d) and proposed (EPA's 17.5 g/d) fish consumption rate, does not represent a measurable change in public health risk, does not constitute a significant public health concern, and does not lower water quality. Therefore, the State has determined that these amendments are consistent with the State's general policy of water quality anti-degradation, and with the requirements of the CWA and EPA's regulations at 40 CFR 131.5 and 131.6.

As indicated in the enclosed Responsiveness Summary, the State included the public in the development and review of revised water quality standards, and the public participation procedures followed by the State in the development and adoption of the May 2009 amendments are consistent with 40 CFR 131.20(b). The proposed revisions and supporting analyses were made available to the public prior to a public hearing, which was held for the purpose of reviewing water quality standards, in accordance with provisions of State law, EPA's water quality management regulation [40 CFR 130.3(b)(6)], and EPA's public participation regulation (40 CFR Part 25).

Finally, we respect EPA's role as a reviewer of state proposals, and we assert that the State choice should be entitled to deference as long as it is within the range of reasonable choices. We observe that your agency has approved a variety of chlordane and dieldrin standards proposed by other states and territories.

We look forward to your approval.

Sincerely,

Laurence K. Lau
Deputy Director for Environmental Health

Enclosure

c: Environmental Planning Office

DEPARTMENT OF HEALTH

Amendment and Compilation of Chapter 11-54
Hawaii Administrative Rules

DEC - 1 2009

SUMMARY

1. §11-54-4 is amended.

2. Chapter 54 is compiled.

HAWAII ADMINISTRATIVE RULES

TITLE 11

DEPARTMENT OF HEALTH

CHAPTER 54

WATER QUALITY STANDARDS

§11-54-1 Definitions. As used in this chapter:

"Ambient conditions" means the water quality conditions that would occur in the receiving waters if these waters were not influenced by the proposed new human activity.

"Amphidromous" means aquatic life that migrate to and from the sea, but not specifically for reproductive purposes. Amphidromous aquatic life in Hawai'ian streams are confined to fresh waters as adults, but their larval stages are partially or entirely spent in the ocean as part of the zooplankton.

"Anchialine pools" means coastal bodies of standing waters that have no surface connections to the ocean but display both tidal fluctuations and salinity ranges characteristic of fresh and brackish waters, indicating the presence of subsurface connections to the watertable and ocean. Anchialine pools are located in porous substrata (recent lava or limestone) and often contain a distinctive assemblage of native aquatic life. Deeper anchialine pools may display salinity stratification, and some shallow pools may contain standing water only on the highest tides.

"Aquatic life" means "any type or species of mammal, fish, amphibian, reptile, mollusk, crustacean, arthropod, invertebrate, coral, or other animal that inhabits the freshwater or marine environment and includes any part, product, egg, or offspring thereof; or freshwater or marine plants, including, seeds, roots, products, and other parts thereof" (section 187A-1, HRS).

"Best degree of treatment or control" means that treatment or control which is required by applicable statutes and regulations of the State of Hawai'i and the Federal Water Pollution Control Act, as amended, (33 USC 1251, et seq.) or which is otherwise specified by the director considering technology or management practices currently available in relation to the public interest.

"Brackish waters" means waters with dissolved inorganic ion concentrations (salinity) greater than 0.5 parts per thousand, but less than thirty-two parts per thousand.

"Coastal waters," means "all waters surrounding the islands of the State from the coast of any island to a point three miles seaward from the coast, and, in the case of streams, rivers, and drainage ditches, to a point three miles seaward from their point of discharge into the sea and includes those brackish waters, fresh waters and salt waters that are subject to the ebb and flow of the tide" (section 342D-1, HRS).

"Coastal wetlands" means natural or man-made ponds and marshes having variable salinity, basin limits, and permanence. These wetlands usually adjoin the coastline and may be subject to tidal, seasonal, or perennial flooding. Coastal wetlands are generally maintained by surface and subterranean sources of fresh and salt water. Many natural coastal wetlands have been modified significantly by man and are characterized by introduced aquatic life. Coastal wetlands include, but are not limited to, salt

marshes, open ponds, mudflats, man-made or natural waterbird refuges, isolated seasonal lakes and mangrove flats.

"Department" means department of health, State of Hawai'i.

"Developed estuaries" means volumes of brackish coastal waters in well-defined basins constructed by man or otherwise highly modified from their natural state. Developed estuaries include, but are not limited to, dredged and revetted stream termini.

"Director" means the director of health, State of Hawai'i, or the director's duly authorized agent.

"Ditches and flumes" means fresh waters flowing continuously in artificial channels. They are used mainly for the purpose of irrigation and usually receive water from stream diversions. Ditches and flumes may be inflowing (carry water to reservoirs or user areas) or outflowing (drain water from reservoirs or user areas).

"Drainage basin" or "watershed" means the region or area drained by a stream or river system.

"Elevated wetlands" means natural freshwater wetlands located above 100 m (330 ft) elevation. They are generally found in undisturbed areas, mainly in remote uplands and forest reserves with high rainfall. Elevated wetlands include upland bogs, marshes, swamps, and associated ponds and pools.

"Estuaries" means characteristically brackish coastal waters in well-defined basins with a continuous or seasonal surface connection to the ocean that allows entry of marine fauna. Estuaries may be either natural or developed.

"Existing uses" means those uses actually attained in the water body on or after November 28, 1975 whether or not they are included in the water quality standards.

"Flowing springs and seeps" means perennial, relatively constant fresh water flows not in distinct channels, in which the water emanates from elevated

aquifers as wet films or trickles over rock surfaces. They are found typically as natural occurrences along rock faces or banks of deeply incised streams, and artificially along road cuts.

"Flowing waters" means fresh waters flowing unidirectionally down altitudinal gradients. These waters may or may not be confined in distinct channels. Flowing waters include streams, flowing springs and seeps and ditches and flumes.

"Fresh waters" means all waters with a dissolved inorganic ion concentration of less than 0.5 parts per thousand.

"Hydric soil" means soil that, in its undrained condition, is saturated, flooded, or ponded and develops conditions that favor the growth and regeneration of hydrophytic vegetation.

"Hydrophytic vegetation" or "hydrophytes" means plants adapted to growing in seasonally or permanently flooded conditions.

"Intermittent streams" means fresh waters flowing in definite natural channels only during part of the year or season.
Intermittent streams include many tributaries of perennial streams.

"Introduced aquatic life" means those species of aquatic organisms that are not native to a given area or water body and whose populations were established (deliberately or accidentally) by human activity. "Introduced" organisms are also referred to as "alien" or "exotic".

"Low wetlands" means freshwater wetlands located below 100 m (330 ft) elevation that may be natural or artificial in origin and are usually found near coasts or in valley termini. Low wetlands are maintained by either stream, well, or ditch influent water, or by exposure of the natural water table. Low wetlands include, but are not limited to, natural lowland marshes, riparian wetlands, littoral zones of standing waters (including lakes, reservoirs, ponds and

fishponds) and agricultural wetlands such as taro lo'i.

"Native aquatic life" means those species or higher taxa of aquatic organisms that occur naturally in a given area or water body and whose populations were not established as a result of human activity.

"Natural estuaries" means volumes of brackish coastal waters in well-defined basins of natural origin, found mainly at the mouths of streams or rivers. Natural estuaries can be either stream-fed (drowned stream mouths fed by perennial stream runoff) or spring-fed (nearshore basins with subterranean fresh water sources). Stream-fed estuaries serve as important migratory pathways for larval and juvenile amphidromous stream fauna.

"Natural freshwater lakes" means standing water that is always fresh, in well-defined natural basins, with a surface area usually greater than 0.1 ha (0.25 acres), and in which rooted emergent hydrophytes, if present, occupy no more than 30% of the surface area. Natural freshwater lakes in Hawai'i occur at high, intermediate, and low elevations. Lowland freshwater lakes characteristically lack a natural oceanic connection (surface or subsurface) of a magnitude sufficient to cause demonstrable tidal fluctuations.

"Perennial streams" means fresh waters flowing year-round in all or part of natural channels, portions of which may be modified by humans. Flow in perennial streams may vary seasonally. Perennial streams may be subdivided into longitudinal zones, based on elevation and gradient: (1) headwater zone (elevation above 800 m [2600 ft] or gradient above 30 per cent or both); (2) mid-zone (elevation between 50-800 m [165-2600 ft], or gradient between 5 and 30 per cent or both); and (3) terminal zone (elevation below 50 m [165 ft] or gradient below 5 per cent or both). Perennial streams may be either continuous or interrupted. Continuous perennial streams discharge continuously to the ocean in their natural state, and

contain water in the entire length of the stream channel year-round. Interrupted perennial streams usually flow perennially in their upper reaches but only seasonally in parts of their middle or lower reaches, due to either downward seepage of surface flow (naturally interrupted) or to man-made water diversions (artificially interrupted).

"Reservoirs" means standing water that is always fresh, in well-defined artificially created impoundments.

"Saline or salt waters" means waters with dissolved inorganic ion concentrations greater than thirty-two parts per thousand.

"Saline lakes" means standing waters of salinities ranging from brackish to hypersaline, located in well-defined natural basins, and lacking a natural surface connection to the ocean. Saline lakes may be present as high-island shoreline or near-shoreline features (e.g. Lake Nomilu, Kauai; Salt Lake, Oahu; Lake Kauhako, Molokai) or as low-island closed lagoons (Lake Laysan, Laysan). They are usually, but not always, fed by seawater seepage and may be diluted by rainwater, overland runoff, or ground water, or concentrated by evaporation.

"Springs and seeps" means small, perennial, relatively constant freshwater flow not in distinct channels, such as wet films or trickles over rock surfaces, in which the water emanates from elevated aquifers. Springs and seeps may be either stream associated, occurring in deeply cut valleys and contributing to stream flow; or coastal, occurring on coastal cliffs and usually flowing into the ocean.

"Standing waters" refers to waters of variable size, depth, and salinity, that have little or no flow and that are usually contained in well-defined basins. Standing water bodies include natural freshwater lakes, reservoirs or impoundments, saline lakes, and anchialine pools.

"State waters", as defined by section 342D-1, HRS, means all waters, fresh, brackish, or salt around and within the State, including, but not limited to, coastal waters, streams, rivers, drainage ditches, ponds, reservoirs, canals, ground waters, and lakes; provided that drainage ditches, ponds, and reservoirs required as part of a water pollution control system are excluded. This chapter applies to all state waters, including wetlands, subject to the following exceptions: (1) This chapter does not apply to groundwater. (2) This chapter does not apply to ditches, flumes, ponds and reservoirs that are required as part of a water pollution control system. (3) This chapter does not apply to ditches, flumes, ponds, and reservoirs that are used solely for irrigation and do not overflow into any other state waters, unless such ditches, flumes, ponds, and reservoirs are waters of the United States as defined at 40 C.F.R. 122.2. The State of Hawai'i has those boundaries stated in Hawai'i Constitution, art. XV, §1.

"Streams" means seasonal or continuous water flowing unidirectionally down altitudinal gradients in all or part of natural or modified channels as a result of either surface water runoff or ground water influx, or both. Streams may be either perennial or intermittent and include all natural or modified watercourses.

"Stream channel" means a natural or modified watercourse with a definite bed and banks which periodically or continuously contains flowing water.

"Stream system", means the aggregate of water features comprising or associated with a stream, including the stream itself and its tributaries, headwaters, ponds, wetlands, and estuary. A stream system is geographically delimited by the boundaries of its drainage basin or watershed.

"Surface water" means both contained surface water (that is, water upon the surface of the earth in

well-defined basins created naturally or artificially including, but not limited to, streams, other watercourses, lakes, and reservoirs) and diffused surface water (that is, water occurring upon the surface of the ground other than in contained basins). Water from natural springs and seeps is surface water when it exits from the spring onto the earth's surface.

"Wetlands" means land that is transitional between terrestrial and aquatic ecosystems where the water table is usually at or near the surface or the land is covered by shallow water. A wetland shall have one or more of the following attributes: 1) at least periodically the land supports predominantly hydrophytic vegetation; 2) the substratum is predominantly undrained hydric soil; or 3) the substratum is nonsoil (gravel or rocks) and is at least periodically saturated with water or covered by shallow water. Wetlands may be fresh, brackish, or saline and generally include swamps, marshes, bogs, and associated ponds and pools, mud flats, isolated seasonal ponds, littoral zones of standing water bodies, and alluvial floodplains. For the purpose of applying for water quality certifications under Clean Water Act Section 401, and for National Pollutant Discharge Elimination System (NPDES) permit purposes, the identification and delineation of wetland boundaries shall be done following the procedures described in the U.S. Army Corps of Engineers' Wetlands Delineation Manual (USACE 1987). [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/02/04; comp 06/15/09; comp FEB 04 2010 ] (Auth: HRS §187A-1, §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5; 40 C.F.R. §§ 122.2, 130.2, 131.3, 131.12; 22 U.S.C. §1362(14)))

§11-54-1.1 General policy of water quality antidegradation.

(a) Existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(b) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the director finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the director shall assure water quality adequate to protect existing uses fully. Further, the director shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(c) Where existing high quality waters constitute an outstanding resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp o4/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5; 40 C.F.R. 131.12) (Imp: HRS §§342D-4, 342D-5)

§11-54-2 Classification of state waters. (a) State waters are classified as either inland waters or marine waters.

(b) Inland waters may be fresh, brackish, or saline.

(1) All inland fresh waters are classified as follows, based on their ecological characteristics and other natural criteria:

(A) Flowing waters.

(i) Streams (perennial and intermittent);

(ii) Flowing springs and seeps; and

(iii) Ditches and flumes that discharge into any other waters of the state;

(B) Standing waters.

(i) Natural freshwater lakes; and

(ii) Reservoirs (impoundments);

(C) Wetlands.

(i) Elevated wetlands (bogs, marshes, swamps, and associated ponds); and

(ii) Low wetlands (marshes, swamps, and associated ponds).

(2) All inland brackish or saline waters are classified as follows, based on their ecological characteristics and other natural criteria:

(A) Standing waters.

(i) Anchialine pools; and

(ii) Saline lakes.

(B) Wetlands.

(i) Coastal wetlands (marshes, swamps, and associated ponds).

(C) Estuaries.

(i) Natural estuaries (stream-fed estuaries and spring-fed estuaries); and

(ii) Developed estuaries.

(c) Marine waters.

(1) All marine waters are either embayments, open coastal, or oceanic waters;

(2) All marine waters which are embayments or open coastal waters are also classified according to the following bottom subtypes:
(A) Sand beaches;
(B) Lava rock shorelines and solution benches;
(C) Marine pools and protected coves;
(D) Artificial basins;
(E) Reef flats; and
(F) Soft bottoms. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-3 Classification of water uses. (a) The following use categories classify inland and marine waters for purposes of applying the standards set forth in this chapter, and for the selection or definition of appropriate quality parameters and uses to be protected in these waters. Storm water discharge into State waters shall be allowed provided it meets the requirements specified in this section and the basic water quality criteria specified in section 11-54-4.

(b) Inland waters.
(1) Class 1.
It is the objective of class 1 waters that these waters remain in their natural state as nearly as possible with an absolute minimum of pollution from any human-caused source. To the extent possible, the wilderness character of these areas shall be protected. Waste discharge into these waters is prohibited. Any conduct which results in a demonstrable increase in levels

of point or nonpoint source contamination in class 1 waters is prohibited.

(A) Class 1.a.
The uses to be protected in class 1.a waters are scientific and educational purposes, protection of native breeding stock, baseline references from which human-caused changes can be measured, compatible recreation, aesthetic enjoyment, and other nondegrading uses which are compatible with the protection of the ecosystems associated with waters of this class;

(B) Class 1.b.
The uses to be protected in class 1.b waters are domestic water supplies, food processing, protection of native breeding stock, the support and propagation of aquatic life, baseline references from which human-caused changes can be measured, scientific and educational purposes, compatible recreation, and aesthetic enjoyment. Public access to these waters may be restricted to protect drinking water supplies;

(2) Class 2.
The objective of class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation. The uses to be protected in this class of waters are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or

control compatible with the criteria established for this class. No new treated sewage discharges shall be permitted within estuaries.

No new industrial discharges shall be permitted within estuaries, with the exception of:

(A) Acceptable non-contact thermal and drydock or marine railway discharges within Pearl Harbor, Oahu;

(B) Stormwater discharges associated with industrial activities (defined in 40 C.F.R. Section 122.26(b)(14) and(b)(15), except (b)(15)(i)(A) and (b)(15)(i)(B)) which meet, at the minimum, the basic water quality criteria applicable to all waters as specified in section 11-54-4(a), and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control"; and

(C) Discharges covered by a National Pollutant Discharge Elimination System general permit, approved by the U.S. Environmental Protection Agency and issued by the Department in accordance with 40 C.F.R. Section 122.28 and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control."

(c) Marine waters.

(1) Class AA.

It is the objective of class AA waters that these waters remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions. To the extent practicable, the wilderness character of

these areas shall be protected. No zones of mixing shall be permitted in this class:

(A) Within a defined reef area, in waters of a depth less than 18 meters (ten fathoms); or

(B) In waters up to a distance of 300 meters (one thousand feet) off shore if there is no defined reef area and if the depth is greater than 18 meters (ten fathoms). The uses to be protected in this class of waters are oceanographic research, the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation, and aesthetic enjoyment. The classification of any water area as Class AA shall not preclude other uses of the waters compatible with these objectives and in conformance with the criteria applicable to them;

(2) Class A.

It is the objective of class A waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class. No new sewage discharges will be permitted within embayments. No new industrial discharges shall be permitted within embayments, with the exception of:

(A) Acceptable non-contact thermal and drydock or marine railway discharges, in the following water bodies:
(i) Honolulu Harbor, Oahu;
(ii) Barbers Point Harbor, Oahu;
(iii) Keehi Lagoon Marina Area, Oahu;
(iv) Ala Wai Boat Harbor, Oahu; and
(v) Kahului Harbor, Maui.

(B) Storm water discharges associated with industrial activities (defined in 40 C.F.R. Section 122.26(b)(14) and (b)(15), except (b)(15)(i)(A) and (b)(15)(i)(B)) which meet, at the minimum, the basic water quality criteria applicable to all waters as specified in section 11-54-4, and all applicable requirements specified in the chapter 11-55, titled "Water Pollution Control;" and

(C) Discharges covered by a National Pollutant Discharge Elimination System general permit, approved by the U.S. Environmental Protection Agency and issued by the Department in accordance with 40 C.F.R. Section 122.28 and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control."

(d) Marine bottom ecosystems.

(1) Class I.

It is the objective of class I marine bottom ecosystems that they remain as nearly as possible in their natural pristine state with an absolute minimum of pollution from any human-induced source. Uses of marine bottom ecosystems in this class are passive human uses without intervention or alteration, allowing the perpetuation and preservation of the marine bottom in a most

natural state, such as for nonconsumptive scientific research (demonstration, observation or monitoring only), nonconsumptive education, aesthetic enjoyment, passive activities, and preservation;

(2) Class II.

It is the objective of class II marine bottom ecosystems that their use for protection including propagation of fish, shellfish, and wildlife, and for recreational purposes not be limited in any way. The uses to be protected in this class of marine bottom ecosystems are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation. Any action which may permanently or completely modify, alter, consume, or degrade marine bottoms, such as structural flood control channelization, (dams); landfill and reclamation; navigational structures (harbors, ramps); structural shore protection (seawalls, revetments); and wastewater effluent outfall structures may be allowed upon securing approval in writing from the director, considering the environmental impact and the public interest pursuant to sections 342D-4, 342D-5, 342D-6, and 342D-50, HRS in accordance with the applicable provisions of chapter 91, HRS.[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §174C, §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-4 Basic water quality criteria applicable to all waters. (a) All waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants, including:

(1) Materials that will settle to form objectionable sludge or bottom deposits;

(2) Floating debris, oil, grease, scum, or other floating materials;

(3) Substances in amounts sufficient to produce taste in the water or detectable off-flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity or other conditions in the receiving waters;

(4) High or low temperatures; biocides; pathogenic organisms; toxic, radioactive, corrosive, or other deleterious substances at levels or in combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water;

(5) Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life; and

(6) Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands.

(b) To ensure compliance with paragraph (a)(4), all state waters are subject to monitoring and to the following standards for acute and chronic toxicity and the protection of human health.

(1) As used in this section:

(A) "Acute Toxicity" means the degree to which a pollutant, discharge, or water sample causes

a rapid adverse impact to aquatic organisms. The acute toxicity of a discharge or receiving water is measured using the methods in section 11-54-10, unless other methods are specified by the director.

(B) "Chronic Toxicity" means the degree to which a pollutant, discharge, or water sample causes a long-term adverse impact to aquatic organisms, such as a reduction in growth or reproduction. The chronic toxicity of a discharge or receiving water is measured using the methods in section 11-54-10, unless other methods are specified by the director.

(C) "Dilution" means, for discharges through submerged outfalls, the average and minimum values calculated using the models in the EPA publication, Initial Mixing Characteristics of Municipal Ocean Discharges (EPA/600/3-85/073, November, 1985), or in the EPA publication, Expert System for Hydrodynamic Mixing Zone Analysis of Conventional and Toxic Submerged Single Port Discharges (Cormix 1) (EPA/600/3-90/073), February, 1990.

(D) "No Observed Effect Concentration Observed Effect Concentration" (NOEC), means the highest per cent concentration of a discharge or water sample, in dilution water, which causes no observable adverse effect in a chronic toxicity test. For example, an NOEC of 100 percent indicates that an undiluted discharge or water sample causes no observable adverse effect to the organisms in a chronic toxicity test.

(2) Narrative toxicity and human health standards.

(A) Acute Toxicity Standards: All state waters shall be free from pollutants in concentrations which exceed the acute

standards listed in paragraph (3). All state waters shall also be free from acute toxicity as measured using the toxicity tests listed in section 11, or other methods specified by the director.

(B) Chronic Toxicity Standards: All state waters shall be free from pollutants in concentrations which on average during any twenty-four hour period exceed the chronic standards listed in paragraph (3). All state waters shall also be free from chronic toxicity as measured using the toxicity tests listed in section 11-54-10, or other methods specified by the director.

(C) Human Health Standards: All state waters shall be free from pollutants in concentrations which, on average during any thirty day period, exceed the "fish consumption" standards for non-carcinogens in paragraph (3). All state waters shall also be free from pollutants in concentrations, which on average during any 12 month period, exceed the "fish consumption" standards for pollutants identified as carcinogens in paragraph (3).

(3) Numeric standards for toxic pollutants applicable to all waters. The freshwater standards apply where the dissolved inorganic ion concentration is less than 0.5 parts per thousand; saltwater standards apply above 0.5 parts per thousand. Values for metals refer to the dissolved fraction. All values are expressed in micrograms per liter.

| Pollutant | Freshwater | | Saltwater | | Fish |
|---|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic | Consumption |
| Acenapthene | 570 | ns | 320 | ns | Ns |

| Pollutant | Freshwater | | Saltwater | | Fish |
|---|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic | Consumption |
| Acrolein | 23 | ns | 18 | ns | 250 |
| Acrylonitrile* | 2,500 | ns | ns | ns | 0.21 |
| Aldrin* | 3.0 | ns | 1.3 | ns | 0.000026 |
| Aluminum | 750 | 260 | ns | ns | ns |
| Antimony | 3,000 | ns | ns | ns | 15,000 |
| Arsenic | 360 | 190 | 69 | 36 | ns |
| Benzene* | 1,800 | ns | 1,700 | ns | 13 |
| Benzidine* | 800 | ns | ns | ns | 0.00017 |
| Beryllium* | 43 | ns | ns | ns | 0.038 |
| Cadmium | 3+ | 3+ | 43 | 9.3 | ns |
| Carbon tetra-chloride* | 12,000 | ns | 16,000 | ns | 2.3 |
| Chlordane* | 2.4 | 0.0043 | 0.09 | 0.004 | 0.00081 |
| Chlorine | 19 | 11 | 13 | 7.5 | ns |
| Chloroethers- | | | | | |
| ethy(bis-2)* | ns | ns | ns | ns | 0.44 |
| isoprophyl | ns | ns | ns | ns | 1,400 |
| methyl(bis)* | ns | ns | ns | ns | 0.00060 |
| Chloroform* | 9,600 | ns | ns | ns | 5.1 |
| Chlorophenol(2) | 1,400 | ns | ns | ns | ns |
| Chlorpyrifos | 0.083 | 0.041 | 0.011 | 0.0056 | ns |
| Chromium (VI) | 16 | 11 | 1,100 | 50 | ns |
| Copper | 6+ | 6+ | 2.9 | 2.9 | ns |
| Cyanide | 22 | 5.2 | 1 | 1 | ns |

§11-54-4

| Pollutant | Freshwater | | Saltwater | | Fish |
|---|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic | Consumption |
| DDT* | 1.1 | 0.001 | 0.013 | 0.001 | 0.000008 |
| metabolite TDE* | 0.03 | ns | 1.2 | ns | ns |
| Demeton | | 0.1 | ns | 0.1 | ns |
| Dichloro-benzenes* | 370 | ns | 660 | ns | 850 |
| benzidine* | ns | ns | ns | ns | 0.007 |
| ethane(1,2)* | 39,000 | ns | 38,000 | ns | 79 |
| ehenol(2,4) | 670 | ns | ns | ns | ns |
| propanes | 7,700 | ns | 3,400 | ns | ns |
| propene(1,3) | 2,000 | ns | 260 | ns | 4.6 |
| Dieldrin* | 2.5 | 0.0019 | 0.71 | 0.0019 | 0.000054 |
| Dinitro o-cresol(2,4) | ns | ns | ns | ns | 250 |
| toluenes* | 110 | ns | 200 | ns | 3.0 |
| Dioxin* | 0.003 | ns | ns | ns | $5.0 \times 10^{-9}$ |
| Diphenyl-hydrazine(1,2) | ns | ns | ns | ns | 0.018 |
| Endosulfan | 0.22 | 0.056 | 0.034 | 0.0087 | 52 |
| Endrin | 0.18 | 0.0023 | 0.037 | 0.0023 | ns |
| Ethylbenzene | 11,000 | ns | 140 | ns | 1,070 |
| Fluoranthene | 1,300 | ns | 13 | ns | 18 |
| Guthion | ns | 0.01 | ns | 0.01 | ns |
| Heptachlor* | 0.52 | 0.0038 | 0.053 | 0.0036 | 0.00009 |

| Pollutant | Freshwater | | Saltwater | | Fish |
|---|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic | Consumption |
| Hexachloro-benzene* | ns | ns | ns | ns | 0.00024 |
| butadiene* | 30 | ns | 11 | ns | 16 |
| cyclohexane- | | | | | |
| alpha* | ns | ns | ns | ns | 0.010 |
| beta* | ns | ns | ns | ns | 0.018 |
| technical* | ns | ns | ns | ns | 0.014 |
| cyclopentadiene | 2 | ns | 2 | ns | ns |
| ethane* | 330 | ns | 310 | ns | 2.9 |
| Isophorone | 39,000 | ns | 4,300 | ns | 170,000 |
| Lead | 29+ | 29+ | 140 | 5.6 | ns |
| Lindane* | 2.0 | 0.08 | 0.16 | ns | 0.020 |
| Malathion | ns | 0.1 | ns | 0.1 | ns |
| Mercury | 2.4 | 0.55 | 2.1 | 0.025 | 0.047 |
| Methoxychlor | ns | 0.03 | ns | 0.03 | ns |
| Mirex | ns | 0.001 | ns | 0.001 | ns |
| Naphthalene | 770 | ns | 780 | ns | ns |
| Nickel | 5+ | 5+ | 75 | 8.3 | 33 |
| Nitrobenzene | 9,000 | ns | 2,200 | ns | ns |
| Nitrophenols* | 77 | ns | 1,600 | ns | ns |
| Nitrosamines* | 1,950 | ns | ns | ns | 0.41 |
| Nitroso dibutylamine-N* | ns | ns | ns | ns | 0.19 |

| Pollutant | Freshwater | | Saltwater | | Fish Consumption |
|---|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic | |
| diethylamine-N* | ns | ns | ns | ns | 0.41 |
| dimethylamine-N* | ns | ns | ns | ns | 5.3 |
| diphenylamine-N* | ns | ns | ns | ns | 5.3 |
| Pyrrolidine-N* | ns | ns | ns | ns | 30 |
| Parathion | 0.065 | 0.013 | ns | ns | ns |
| Pentachloro-ethanes | 2,400 | ns | 130 | ns | ns |
| benzene | ns | ns | ns | ns | 28 |
| phenol | 20 | 13 | 13 | ns | ns |
| Phenol | 3,400 | ns | 170 | ns | ns |
| 2,4-dimethyl | 700 | ns | ns | ns | ns |
| Phthalate esters | | | | | |
| dibutyl | ns | ns | ns | ns | 50,000 |
| diethyl | ns | ns | ns | ns | 590,000 |
| di-2-ethylhexyl | ns | ns | ns | ns | 16,000 |
| dimethyl | ns | ns | ns | ns | 950,000 |
| Polychlorinated biphenyls* | 2.0 | 0.014 | 10 | 0.03 | 0.000079 |
| Polynuclear aromatic hydrocarbons* | ns | ns | ns | ns | 0.01 |
| Selenium | 20 | 5 | 300 | 71 | ns |
| Silver | 1+ | 1+ | 2.3 | ns | ns |
| Tetrachloro-ethanes | 3,100 | ns | ns | ns | ns |
| benzene(1,2,4,5) | ns | ns | ns | ns | 16 |

| Pollutant | Freshwater | | Saltwater | | Fish |
|---|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic | Consumption |
| ethane(1,1,2,2)* | ns | ns | 3,000 | ns | 3.5 |
| ethylene* | 1,800 | ns | 3,400 | 145 | 2.9 |
| phenol(2,3,5,6) | ns | ns | ns | 440 | ns |
| Thallium | 470 | ns | 710 | ns | 16 |
| Toluene | 5,800 | ns | 2,100 | ns | 140,000 |
| Toxaphene* | 0.73 | 0.0002 | 0.21 | 0.0002 | 0.00024 |
| Tributyltin | ns | 0.026 | ns | 0.01 | ns |
| Trichloro- | | | | | |
| ethane(1,1,1) | 6,000 | ns | 10,400 | ns | 340,000 |
| ethane(1,1,2)* | 6,000 | ns | ns | ns | 14 |
| ethylene* | 15,000 | ns | 700 | ns | 26 |
| phenol(2,4,6)* | ns | ns | ns | ns | 1.2 |
| Vinylchloride* | ns | ns | ns | ns | 170 |
| Zinc | 22+ | 22+ | 95 | 86 | ns |

ns - No standard has been developed.
* - Carcinogen.
\+ - The value listed is the minimum standard. Depending upon the receiving water $CaCO_3$ hardness, higher standards may be calculated using the respective formula in the U. S. Environmental Protection Agency publication Quality Criteria for Water (EPA 440/5-86-001, Revised May 1, 1987).

Note - Compounds listed in the plural in the "Pollutant" column represent complex mixtures of isomers. Numbers listed to the right of these compounds refer to the total allowable concentration of any combination of isomers of the compound, not only to concentrations of individual isomers.

(4) The following are basic requirements applicable to discharges to state waters. These standards shall be enforced through effluent limitations or other conditions in discharge permits. The director may apply more stringent discharge requirements to any discharge if necessary to ensure compliance with all standards in paragraph (2).

(A) Continuous discharges through submerged outfalls. The No Observed Effect Concentration (NOEC), expressed as percent effluent, of continuous discharges through submerged outfalls shall not be less than 100 divided by the minimum dilution. In addition, such discharges shall not contain:

(i) Pollutants in twenty-four hour average concentrations greater than the values obtained by multiplying the minimum dilution by the standards in paragraph (3) for the prevention of chronic toxicity.

(ii) Non-carcinogenic pollutants in thirty day average concentrations greater than the values obtained by multiplying the minimum dilution by the standards in paragraph (3) for fish consumption.

(iii) Carcinogenic pollutants in twelve month average concentrations greater than the values obtained by multiplying the average dilution by the standards in paragraph (3)for fish consumption.

(B) Discharges without submerged outfalls. The survival of test organisms in an

undiluted acute toxicity test of any discharge shall not be less than 80 per cent. In addition, no such discharge shall contain pollutants in concentrations greater than the standards in paragraph (3) for the prevention of acute toxicity to aquatic life. The director may make a limited allowance for dilution for a discharge in this category if it meets the following criteria: the discharge velocity is greater than 3 meters per second; the discharge enters the receiving water horizontally, and; the receiving water depth at the discharge point is greater than zero.

(c) The requirements of paragraph (a)(6) shall be deemed met upon a showing that the land on which the erosion occurred or is occurring is being managed in accordance with soil conservation practices acceptable to the applicable soil and water conservation district and the director, and that a comprehensive conservation program is being actively pursued, or that the discharge has received the best degree of treatment or control, and that the severity of impact of the residual soil reaching the receiving body of water is deemed to be acceptable.

(d) In order to reduce a risk to public health or safety arising out of any violation or probable violation of this chapter, the director may post or order posted any state waters. Posting is the placement, erection, or use of a sign or signs warning people to stay out of, avoid drinking, avoid contact with, or avoid using the water. This posting authority shall not limit the director's authority to post or order posting in any other appropriate case or to take any enforcement action. [Eff 11/12/82; am and comp

10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; am and comp 06/15/09; am and comp FEB 0 4 2010 ] (Auth: HRS §§342D-1,342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-5 Uses and specific criteria applicable to inland waters. Inland water areas to be protected are described in section 11-54-5.1, corresponding specific criteria are set forth in section 11-54-5.2; water body types are defined in section 11-54-1. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-5.1 Inland water areas to be protected.

(a) Freshwaters.

(1) Flowing waters: perennial streams and rivers, intermittent streams, springs and seeps, and man-made ditches and flumes that discharge into any other waters of the State.

A) Class 1.a.

(i) All flowing waters within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(ii) All flowing waters in national and state parks.

(iii) All flowing waters in state or federal fish and wildlife refuges.

(iv) All flowing waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(v) All flowing waters in Wai-manu National Estuarine Research Reserve (Hawai'i).

(B) Class 1.b. All flowing waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(C) Class 2. All flowing waters in areas not otherwise classified.

All flowing waters in classes 1 and 2 in which water quality exceeds the standards specified in this chapter shall not be lowered in quality unless it has been affirmatively demonstrated to the director that the change is justifiable as a result of important economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently in, those waters. This statement of antidegradation policy does not limit the applicability of the policy in §11-54.1.1 to the whole chapter.

(2) Standing waters (natural freshwater lakes and reservoirs):

(A) Class 1.a.

(i) All standing waters within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar

reserves for the protection of aquatic life established under chapter 195, HRS.

(ii) All standing waters in national and state parks.

(iii) All standing waters in state or federal fish and wildlife refuges.

(iv) All standing waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(v) All standing waters in Wai-manu National Estuarine Research Reserve (Hawai'i).

(B) Class 1.b. All standing waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(C) Class 2. All standing waters in areas not otherwise classified.

(3) Elevated wetlands and low wetlands:

(A) Class 1.a.

(i) All elevated and low wetlands within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(ii) All elevated and low wetlands in national and state parks.

(iii) All elevated and low wetlands in state or federal fish and wildlife refuges.

(iv) All elevated and low wetlands which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(v) All elevated and low wetlands in Wai-manu National Estuarine Research Reserve (Hawai'i).

(B) Class 1.b. All elevated and low wetlands in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(C) Class 2. All elevated and low wetlands not otherwise classified.

(b) Brackish or saline waters (anchialine pools, saline lakes, coastal wetlands, and estuaries).

(1) Class 1.a.

(A) All inland brackish or saline waters within natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(B) All inland brackish or saline waters in national and state parks.

(C) All inland brackish or saline waters in state or federal fish and wildlife refuges.

(D) All inland brackish or saline waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(E) All inland brackish and saline waters in Wai-manu National Estuarine Research Reserve (Hawai'i).

(F) The following natural estuaries: Lumaha'i and Ki-lau-ea estuaries (Kaua'i).

(2) Class 1.b. All inland brackish or saline waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(3) Class 2. All inland brackish and saline waters not otherwise classified. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4,342D-5)

§11-54-5.2 Inland water criteria. (a) Criteria for springs and seeps, ditches and flumes, natural freshwater lakes, reservoirs, low wetlands, coastal wetlands, saline lakes, and anchialine pools. Only the basic criteria set forth in section 11-54-4 apply to springs and seeps, ditches and flumes, natural freshwater lakes, reservoirs, low wetlands, coastal wetlands, saline lakes, and anchialine pools. Natural freshwater lakes, saline lakes, and anchialine pools will be maintained in the natural state through Hawai'i's "no discharge" policy for these waters. Waste discharge into these waters is prohibited (see paragraph 11-54-3(b)(1)).

(b) Specific criteria for streams. Water column criteria for streams shall be as provided in the following table:

| Parameter | Geometric mean not to exceed the given value | Not to exceed the given value more than ten per cent of the time | Not to Exceed the given value more than two per cent of the time |
|---|---|---|---|
| Total Nitrogen (ug N/L) | 250.0*<br>180.0** | 520.0*<br>380.0** | 800.0*<br>600.0** |
| Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L) | 70.0*<br>30.0** | 180.0*<br>90.0** | 300.0*<br>170.0** |
| Total Phosphorus (ug P/L) | 50.0*<br>30.0** | 100.0*<br>60.0** | 150.0*<br>80.0** |
| Total Suspended Solids (mg/L) | 20.0*<br>10.0** | 50.0*<br>30.0** | 80.0*<br>55.0** |
| Turbidity (N.T.U.) | 5.0*<br>2.0** | 15.0*<br>5.5** | 25.0*<br>10.0** |

* Wet season - November 1 through April 30.
** Dry season - May 1 through October 31.
L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 5.5 nor higher than 8.0
Dissolved Oxygen - Not less than eighty per cent saturation, determined as a function of ambient water temperature.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Specific Conductance - Not more than three hundred micromhos/centimeter.

(2) Bottom criteria for streams:

(A) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding an equivalent thickness of five millimeters (0.20 inch) over hard bottoms twenty-four hours after a heavy rainstorm.

(B) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding an equivalent thickness of ten millimeters (0.40 inch) over soft bottoms twenty-four hours after a heavy rainstorm.

(C) In soft bottom material in pool sections of streams, oxidation-reduction potential (EH) in the top ten centimeters (four inches) shall not be less than +100 millivolts.

(D) In soft bottom material in pool sections of streams, no more than fifty per cent of the grain size distribution of sediment shall be smaller than 0.125 millimeter (0.005 inch) in diameter.

(E) The director shall prescribe the appropriate parameters, measures, and criteria for monitoring stream bottom biological communities including their habitat, which may be affected by proposed actions. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality criteria for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms

which may be applicable to the specific site.

(c) Specific criteria for elevated wetlands: pH units shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 4.5 nor higher than 7.0.

(d) Specific criteria for estuaries.

(1) The following table is applicable to all estuaries except Pearl Harbor:

| Parameter | Geometric mean not to exceed the given value | Not to exceed the given value more than ten per cent of the time | Not to Exceed the given value more than two per cent of the time |
|---|---|---|---|
| Total Nitrogen (ug N/L) | 200.00 | 350.00 | 500.00 |
| Ammonia Nitrogen (ug $NH_4$-N/L) | 6.00 | 10.00 | 20.00 |
| Nitrate + Nitrite Nitrogen (ug [$NO_3$+$NO_2$]-N/L) | 8.00 | 25.00 | 35.00 |
| Total Phosphorus (ug P/L) | 25.00 | 50.00 | 75.00 |
| Chlorophyll a (ug/L) | 2.00 | 5.00 | 10.00 |
| Turbidity (N.T.U.) | 1.5 | 3.00 | 5.00 |

L = liter

N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard

reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 7.0 nor higher than 8.6.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from ambient conditions.
Oxidation - reduction potential (EH) - Shall not be less than -100 millivolts in the uppermost ten centimeters (four inches) of sediment.

(2) The following table is applicable only to Pearl Harbor Estuary.

| Parameter | Geometric mean not to exceed the given value | Not to exceed the given value more than ten per cent of the time | Not to exceed the given value more than two per cent of the time |
|---|---|---|---|
| Total Nitrogen (ug N/L) | 300.00 | 550.00 | 750.00 |
| Ammonia Nitrogen (ug $NH_4$-N/L) | 10.00 | 20.00 | 30.00 |
| Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L) | 15.00 | 40.00 | 70.00 |
| Total Phosphorus (ug P/L) | 60.00 | 130.00 | 200.00 |
| Chlorophyll a (ug/L) | 3.50 | 10.00 | 20.00 |

| Parameter | Geometric mean not to exceed the given value | Not to exceed the given value more than ten per cent of the time | Not to exceed the given value more than two per cent of the time |
|---|---|---|---|
| Turbidity (N.T.U.) | 4.00 | 8.00 | 15.00 |

L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams.
pH Units - shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 6.8 nor higher than 8.8.
Dissolved Oxygen - Not less than sixty per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from ambient conditions.
Oxidation - Reduction potential (EH) - Shall not be less than -100 millivolts in the uppermost ten centimeters (four inches) of sediment. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-6 Uses and specific criteria applicable to marine waters. (a) Embayments.

(1) As used in this section:
"Embayments" means land-confined and physically-protected marine waters with restricted openings to open coastal waters, defined by the ratio of total bay volume to the cross-sectional entrance area of seven hundred to one or greater.
"Total bay volume" is measured in cubic meters and "cross-sectional entrance area" is measured in square meters, and both are determined at mean lower low water.

(2) Water areas to be protected.

(A) Class AA.

(i) Hawaii
Puako Bay
Waiulua Bay
Anaehoomalu Bay
Kiholo Bay
Kailua Harbor
Kealakekua Bay
Honaunau Bay

Oahu
Waialua Bay
Kahana Bay
Kaneohe Bay
Hanauma Bay

Kauai
Hanalei Bay

(ii) All embayments in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS, or similar

reserves for the protection of marine life established under chapter 190, HRS.

(iii) All waters in state or federal fish and wildlife refuges and marine sanctuaries.

(iv) All waters which have been officially identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(B) Class A.

Hawaii
Hilo Bay (inside breakwater)
Kawaihae Boat Harbor
Honokohau Boat Harbor
Keauhou Bay

Maui
Kahului Bay
Lahaina Boat Harbor
Maalaea Boat Harbor

Lanai
Manele Boat Harbor
Kaumalapau Harbor

Molokai
Hale o Lono Harbor
Kaunakakai Harbor
Kaunakakai Boat Harbor

Oahu
Kaiaka Bay
Paiko Peninsula to Koko Head
Ala Wai Boat Harbor
Kewalo Basin
Honolulu Harbor
Keehi Lagoon
Barbers Point Harbor
Pokai Bay
Heeia Kea Boat Harbor

Waianae Boat Harbor
Haleiwa Boat Harbor
Ko Olina

Kauai
Hanamaulu Bay
Nawiliwili Bay
Kukuiula Bay
Wahiawa Bay
Hanapepe Bay (inside breakwater)
Kikiaola Boat Harbor
Port Allen Boat Harbor

(3) The following criteria are specific for all embayments excluding those described in section 11-54-06(d).(Note that criteria for embayments differ based on fresh water inflow.)

| Parameter | Geometric mean not to exceed the given value | Not to exceed the given value more than ten per cent of the time | Not to Exceed the given value more than Two per cent of The time |
|---|---|---|---|
| Total Nitrogen (ug N/L) | 200.00*<br>150.00** | 350.00*<br>250.00** | 500.00*<br>350.00** |
| Ammonia Nitrogen (ug $NH_4$-N/L) | 6.00*<br>3.50** | 13.00*<br>8.50** | 20.00*<br>15.00** |
| Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L) | 8.00*<br>5.00** | 20.00*<br>14.00** | 35.00*<br>25.00** |
| Total Phosphorus (ug P/L) | 25.00*<br>20.00** | 50.00*<br>40.00* | 75.00*<br>60.00** |
| Chlorophyll a ug/L) | 1.50*<br>0.50** | 4.50**<br>1.50** | 8.50*<br>3.00** |
| Turbidity (N.T.U.) | 1.5*<br>0.40** | 3.00*<br>1.00** | 5.00*<br>1.50** |

* "Wet" criteria apply when the average fresh water inflow from the land equals or exceeds one per cent of the embayment volume per day.
** "Dry" criteria apply when the average fresh water inflow from the land is less than one per cent of the embayment volume per day.
Applicable to both "wet" and "dry" conditions:
pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to a minimum level of 7.0.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.
L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams

(b) Open coastal waters.

(1) As used in this section:
"Open coastal waters" means marine waters bounded by the 183 meter or 600 foot (100 fathom) depth contour and the shoreline, excluding bays named in subsection (a);

(2) Water areas to be protected (measured in a clockwise direction from the first-named to the second-named location, where applicable):

(A) Class AA.

(i) Hawaii - The open coastal waters from Leleiwi Point to Waiulaula Point;

(ii) Maui - The open coastal waters between Nakalele Point and Waihee Point and between Huelo Point and Puu Olai;

(iii) Kahoolawe - All open coastal water surrounding the island;

(iv) Lanai - All open coastal waters surrounding the island;

(v) Molokai - The open coastal waters between the westerly boundary of Hale o Lono Harbor to Lamaloa Head. Also, the open coastal waters from Cape Halawa to the easterly boundary of Kaunakakai Harbor;

(vi) Oahu - Waimanalo Bay from the southerly boundary of Kaiona Beach Park, and including the waters surrounding Manana and Kaohikaipu Islands, to Makapuu Point. Also, Waialua Bay from Kaiaka Point to Puaena Point, and the open coastal waters along Kaena Point between a distance of 5.6 kilometers (3.5 miles) from Kaena Point towards Makua and 5.6 kilometers (3.5 miles) from Kaena Point toward Mokuleia;

(vii) Kauai - The open coastal waters between Hikimoe Valley and Makahoa Point. Also, the open coastal waters between Makahuena Point and the westerly boundary of Hoai Bay;

(viii) Niihau - All open coastal waters surrounding the island;

(ix) All other islands of the state - All open coastal waters surrounding the islands not classified in this section;

(x) All open waters in preserves, reserves sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS or similar reserves for the protection of marine life established under chapter 190, HRS, as amended; or in the refuges or sanctuaries established by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service;

(B) Class A - All other open coastal waters not otherwise specified.

(3) The following criteria are specific for all open coastal waters,excluding those described in section 11-54-6(d). (Note that criteria for open coastal waters differ, based on fresh water discharge.)

| Parameter | Geometric mean not to exceed the given value | Not to exceed the given value more than ten per cent of the time | Not to exceed the given value more than two per cent of the time |
|---|---|---|---|
| Total Nitrogen (ug N/L) | 150.00*<br>110.00** | 250.00*<br>180.00** | 350.00*<br>250.00** |
| Ammonia Nitrogen (ug $NH_4$-N/L) | 3.50*<br>2.00** | 8.50*<br>5.00** | 15.00*<br>9.00** |

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| Parameter | Geometric mean not to exceed the given value | Not to exceed the given value more than ten per cent of the time | Not to exceed the given value more than two per cent of the time |
|---|---|---|---|
| Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L) | 5.00*<br>3.50** | 14.00*<br>10.00** | 25.00*<br>20.00** |
| Total Phosphorus (ug P/L) | 20.00*<br>16.00** | 40.00*<br>30.00** | 60.00*<br>45.00** |
| Light Extinction Coefficient (k units) | 0.20*<br>0.10** | 0.50*<br>0.30** | 0.85*<br>0.55** |
| Chlorophyll a ug/L) | 0.30*<br>0.15** | 0.90*<br>0.50** | 1.75*<br>1.00** |
| Turbidity (N.T.U.) | 0.50*<br>0.20** | 1.25*<br>0.50** | 2.00*<br>1.00** |

* "Wet" criteria apply when the open coastal waters receive more than three million gallons per day of fresh water discharge per shoreline mile.
** "Dry" criteria apply when the open coastal waters receive less than three million gallons per day of fresh water discharge per shoreline mile.
Applicable to both "wet" and "dry" conditions:
pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to a minimum level of 7.0.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.

Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.
k units = the ratio of light measured at the water's surface to light measured at a particular depth.
L = liter
Light Extinction Coefficient is only required for dischargers who have obtained a waiver pursuant to Section 301(h) of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1251), as amended, and are required by EPA to monitor it.
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams

(c) Oceanic waters.

(1) Definition - "Oceanic waters" means all other marine waters outside of the 183 meter (600 feet or 100 fathom) depth contour;

(2) Water areas to be protected - Class A - All oceanic waters;

(3) The following criteria are specific for oceanic waters:

| Parameter | Geometric mean not to exceed the given value | Not to exceed The given value more than ten per cent of the time | Not to exceed the given value more than two per cent of the time |
|---|---|---|---|
| Total Nitrogen (ug N/L) | 50.00 | 80.00 | 100.00 |
| Ammonia Nitrogen (ug $NH_4$-N/L) | 1.00 | 1.75 | 2.50 |

| Parameter | Geometric mean not to exceed the given value | Not to exceed The given value more than ten per cent of the time | Not to exceed the given value more than two per cent of the time |
|---|---|---|---|
| Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L) | 1.50 | 2.50 | 3.50 |
| Total Phosphorus (ug P/L) | 10.00 | 18.00 | 25.00 |
| Chlorophyll a (ug/L) | 0.06 | 0.12 | 0.20 |
| Turbidity (N.T.U.) | 0.03 | 0.10 | 0.20 |

L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - shall not deviate more than 0.5 units from a value of 8.1.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.
(d) Area-specific criteria for the Kona (west) coast of the island of Hawaii.

(1) For all marine waters of Hawaii Island from Loa Point, South Kona District, clockwise to Malae Point, North Kona District, excluding Kawaihae Harbor and Honokohau Harbor, and for all areas from the shoreline at mean lower low water to a distance 1000 m seaward:

(i) in areas where nearshore marine water salinity is greater than 32.00 parts per thousand the following specific criteria apply:

| Parameter | Geometric mean not to exceed the given single value |
|---|---|
| Total Dissolved Nitrogen (ug N/L) | 100.00 |
| Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L) | 4.50 |
| Total Dissolved Phosphorus (ug P/L) | 12.50 |
| Phosphate (ug $PO_4$ - P/L) | 5.00 |
| Ammonia Nitrogen (ug $NH_4$ - N/L) | 2.50 |
| Chlorophyll a (ug/L) | 0.30 |
| Turbidity (N.T.U.) | 0.10 |

* Specific criteria for Class A embayments apply to Honokohau Harbor and Kawaihae Harbor, see section 11-54-6(a)(3).

(ii) if nearshore marine water salinity is less than or equal to 32.00 parts per thousand the following parameters shall be related to salinity on the basis of a linear least squares regression equation:

$$Y = MX + B$$

where:
Y = parameter concentration(in ug/L)
X = salinity (in ppt)
M = regression coefficient (or "slope")
B = constant (or "Y intercept").
The absolute value of the upper 95 per cent confidence limit for the calculated sample regression coefficient (M) shall not exceed the absolute value of the following values:

| Parameter | M |
|---|---|
| Nitrate and Nitrite Nitrogen (ug [NO3 + NO2]-N/L) | -31.92 |
| Total Dissolved Nitrogen (ug N/L) | -40.35 |
| Phosphate (ug PO4 - P/L) | -3.22 |
| Total Dissolved Phosphorus (ug P/L) | -2.86 |

The specific criteria for ammonia nitrogen, chlorophyll a, and turbidity given in (i) above, also apply.

(iii) Parameter concentrations shall be determined along a horizontal transect

extending seaward from a shoreline sample location using the following method: water samples shall be obtained at distances of 1, 10, 50, 100, and 500 meters from the shoreline sampling location. Samples shall be collected within one meter of the water surface and below the air-water interface. Dissolved nutrient samples shall be filtered through media with particle size retention of 0.7 um. This sampling protocol shall be replicated not less than three times on different days over a period not to exceed fourteen days during dry weather conditions. The geometric means of sample measurements for corresponding offshore distances shall be used for regression calculations.

pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to a minimum level of 7.0.

Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.

Temperature - Shall not vary more than one degree Celsius from ambient conditions.

Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.

L - liter

N.T.U. - Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the

same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug - microgram or 0.000001 grams. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 04 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-7 Uses and specific criteria applicable to marine bottom types. (a) Sand beaches.

(1) As used in this section:
"Sand beaches" means shoreline composed of the weathered calcareous remains of marine algae and animals (white sand), the weathered remains of volcanic tuff (olivine), or the weathered remains of lava (black sand). Associated animals are largely burrowers and are related to particle grain size, slope, and color of the beach;

(2) Water areas to be protected:
(A) Class I - All beaches on the Northwestern Hawaiian Islands. These islands comprise that portion of the Hawaiian archipelago which lies northwest of the island of Kauai and is part of the State of Hawaii; including Nihoa Island, Necker Island, French Frigate Shoals, Brooks Banks, Gardiner Pinnacles, Dowsett and Maro Reef, Laysan Island, Lisianski Island, Pearl and Hermes Atoll, Gambia Shoal Kure Atoll;
(B) Class II - All beaches not in Class I;

(3) The following criteria are specific to sand beaches:

(A) Episodic deposits of flood-borne sediment shall not occur in quantities exceeding an equivalent thickness of ten millimeters (0.40 inch) twenty-four hours after a heavy rainstorm;

(B) Oxidation - reduction potential (EH) in the uppermost ten centimeters (four inches) of sediment shall not be less than +100 millivolts;

(C) No more than fifty per cent of the grain size distribution of sediment shall be smaller than 0.125 millimeters in diameter.

(b) Lava rock shoreline and solution benches.

(1) As used in this section:
"Lava rock shorelines" means sea cliffs and other vertical rock faces, horizontal basalts, volcanic tuff beaches, and boulder beaches formed by rocks falling from above or deposited by storm waves. Associated plants and animals are adapted to the harsh physical environment and are distinctly zoned to the degree of wave exposure;
Solution benches" means sea level platforms developed on upraised reef or solidified beach rock by the erosive action of waves and rains. Solution benches are distinguished by a thick algal turf and conspicuous zonation of plants and animals;

(2) Water areas to be protected:

(A) Class I - All lava rock shorelines and solution benches in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS, or similar reserves for the protection of marine life established under chapter 190, HRS, as amended; or in refuges or

sanctuaries established by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service;

(B) Class II

(i) All other lava rock shorelines not in Class I;

(ii) The following solution benches:

| Maui | Oahu |
|---|---|
| Kihei | Diamond Head |
| Papaula Point | Manana Island |
| | Makapuu |
| Kauai | Laie |
| Near Hanapepe Salt Ponds | Kahuku |
| Mililii | Mokuleia |
| Nualolo | Makua |
| Makaha | Makaha |
| Mahaulepu | Maile |
| Kuhio Beach Park (Kukuiula) | Lualualei |
| | Barbers Point |

(3) The following criteria are specific to lava rock shorelines and solution benches:

(A) Episodic deposits of flood-borne sediment shall not occur in quantities exceeding an equivalent thickness of five millimeters (0.20 inch) for longer than twenty-four hours after a heavy rainstorm;

(B) The director shall determine parameters, measures, and criteria for bottom biological communities which may be affected by proposed actions. The location and boundaries of each bottom-type class will be clarified when situations require their identification. For example, when a discharge permit is applied for or a

waiver pursuant to Section 301(h) of the Federal Water Pollution Control Act (33 U.S.C. Section 1311) is required. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality standards for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms which may be applicable to the specific site.

(c) Marine pools and protected coves.

(1) As used in this section:

"Marine pools" means waters which collect in depressions on sea level lava rock outcrops and solution benches and also behind large boulders fronting the sea. Pools farthest from the ocean have harsher environments and less frequent renewal of water and support fewer animals. Those closest to the ocean are frequently renewed with water, are essentially marine, and support more diverse fauna;

"Protected coves" means small inlets which are removed from heavy wave action or surge;

(2) Water areas to be protected;

(A) Class I.

(i) All marine pools and protected coves in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190,

HRS, or similar reserves for the protection of marine life established under chapter 190, HRS, as amended; or in refuges or sanctuaries established by the U.S. Fish and Wildlife Service or the National Fisheries Service;

(ii) Hawaii
Honaunau
Kiholo

(A) Class II

| Hawaii | Maui |
|---|---|
| Kalapana | Hana |
| Pohakuloa | Keanae |
| Kapalaoa | Napili |
| Kapoho | Puu Olai to Cape Hanamanioa |
| King's Landing (Papai) | Kipahulu |
| Hilo | |
| Leileiwi Point | |
| Wailua Bay | Molokai |
| | Cape Halawa |
| | Kalaupapa |
| | South Coast |

Oahu
Diamond Head
Halona Blowhole to Makapuu
Mokuleia
Kaena Point
Makua
Punaluu

Kauai
Kealia
Mahaulepu
Hanamaulu
Poipu
Puolo Point

(3) The following criteria are specific to marine pools and protected coves:

(A) In marine pools and coves with sand bottoms, oxidation - reduction potential (EH) in the uppermost ten centimeters (four inches) of sediment shall not be less than +100 millivolts;

(B) In marine pools and coves with sand bottoms, no more than fifty per cent of the grain size distribution of the sediment shall be smaller than 0.125 millimeters in diameter;

(F) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding equivalent thicknesses for longer than twenty-four hours following a heavy rainstorm according to the following:

(i) No thicker than an equivalent of five millimeters (0.20 inch) on hard bottoms (other than living corals);

(ii) No thicker than an equivalent of ten millimeters (0.40 inch) on soft bottoms;

(D) The director shall determine parameters, measures, and criteria for bottom biological communities which may be affected by proposed actions. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality standards for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator

organisms which may be applicable to the specific site.

(d) Artificial basins.

(1) As used in this section:
"Artificial basins" means dredged or quarried channels or harbors, and harbor-associated submerged structures. Many organisms can attach to the vertical structures, but the soft, shifting sediment bottoms of harbors may only be colonized by a few hardy or transient species.

(2) Class II water areas to be protected are as follows:

(A) Shallow draft harbors:

Hawaii
Wailoa River Boat Harbor
Mahukona Harbor
Keauhou Harbor
Kailua-Kona Harbor
Honokohau Boat Harbor
Kawaihae Boat Harbor

Maui
Maalaea Boat Harbor
Lahaina Boat Harbor
Hana Harbor

Lanai
Manele Boat Harbor
Kaumalapau Harbor

Molokai
Kalaupapa Anchorage
Kaunakakai Small Boat Harbor
Hale o Lono Harbor

Oahu
Heeia Kea Boat Harbor
Kaneohe Marine Corps Air Station
Kaneohe Yacht Club
Hawaii Kai Marina (Kuapa Pond)
Pokai Bay

Waianae Boat Harbor
Keehi Marine Center
La Mariana Sailing Club
Haleiwa Harbor
Makani Kai Marina
Keehi Boat Harbor
Ala Wai Boat Harbor:
    Ala Wai Fuel Dock
    Hawaii Yacht Club
    Waikiki Yacht Club
Ko Olina

Kauai
Nawiliwili Small Boat Harbor
Kukuiula Boat Harbor
Kikiaola Boat Harbor
Port Allen Boat Harbor

(B) Deep draft commercial harbors:

Hawaii
Kuhio Bay (Hilo Harbor)
Kawaihae Deep Draft Harbor

Maui
Kahului Harbor

Molokai
Kaunakakai Barge Harbor

Oahu
Honolulu Harbor
Barbers Point Harbor
Kewalo Basin

Kauai
Nawiliwili Harbor
Port Allen Harbor

(3) Specific criterion to be applied - Oxidation - reduction potential (EH) in the uppermost ten centimeters (four inches) of sediment shall not be less than -100 millivolts.

(e) Reef flats and reef communities.

(1) As used in this section:

"Nearshore reef flats" means shallow platforms of reef rock, rubble, and sand extending from the shoreline. Smaller, younger flats projected out as semicircular aprons while older, larger flats form wide continuous platforms. Associated animals are mollusks, echinoderms, worms, crustaceans (many living beneath the surface), and reef-building corals.

"Offshore reef flats" means shallow, submerged platforms of reef rock and sand between depths of zero to three meters (zero to ten feet) which are separated from the shoreline of high volcanic islands by lagoons or ocean expanses. Dominant organisms are bottom-dwelling algae. Biological composition is extremely variable. There are three types: patch, barrier, and atoll reef flats; quite different from one another structurally. The presence of heavier wave action, water more oceanic in character, and the relative absence of terrigenous influences distinguish offshore reef flats.

"Protected reef communities" means hard bottom aggregations, including scattered sand channels and patches, dominated by living coral thickets, mounds, or platforms. They are found at depths of ten to thirty meters (thirty-two to ninety-six feet) along protected leeward coasts or in shallow water (up to sea level) in sheltered lagoons

behind atoll or barrier reefs and in the calm reaches of bays or coves. "Wave-exposed reef communities" means aggregations, including scattered sand channels and patches, dominated by corals. They may be found at depths up to forty meters (approximately one hundred thirty feet) along coasts subject to continuous or heavy wave action and surge. Wave-exposed reef communities are dominated biologically by benthic algae, reef-building corals, and echinoderms.

(2) Water areas to be protected:

(A) Class 1.

(i) All reef flats and reef communities in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS, or similar reserves for the protection of marine life under chapter 190, HRS, as amended; or in refuges or sanctuaries established by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service;

(ii) Nearshore reef flats:

| Hawaii | Maui |
|---|---|
| Puako | Honolua |
| Lanai | Oahu |
| Northwest Lanai Reef | Hanauma Bay |
| Molokai | Kauai |
| Western Kalaupapa | Nualolokai |
| Southeast Molokai Reef | Hanalei |
| Honomuni Harbor | (Anini to |
| Kulaalamihi Fishpond | Haena) |

(iii) Offshore reef flats:
Moku o Loe (Coconut Island, Kaneohe Bay, Oahu)
Kure Atoll
Pearl and Hermes Atoll
Lisianski Island
Laysan Island
Maro Reef
French Frigate Shoals

(iv) Wave exposed reef communities:
Hawaii
1823 Lava Flow (Punaluu)
1840 Lava Flow (North Puna)
1868 Lava Flow (South Point)
1887 Lava Flow (South Point)
1955 Lava Flow (South Puna)
1960 Lava Flow (Kapoho)
1969 Lava Flow (Apuna Point)
1970 Lava Flow (Apuna Point)
1971 Lava Flow (Apuna Point)
1972 Lava Flow (Apuna Point)
1973 Lava Flow (Apuna Point)

Maui
Hana Bay
Makuleia Bay (Honolua)

Molokini Island
All wave exposed reef communities

Molokai
Moanui Kahinapohaku Waikolu - Kalawao
Halawa Bay

Oahu
Sharks Cove (Pupukea)
Moku Manu (Islands)

Outer Hanauma Bay
Waimea Bay
Kawela Bay
Kahana Bay

Kauai
Ke`e Beach
Poipu Beach
Kipu Beach

Niihau
All wave exposed communities

Lehua (off Niihau)
All wave exposed communities

(v) Protected reef communities:

Hawaii
Puako
Honaunau
Kealakekua
Kiholo
Anaehoomalu
Hapuna
Kahaluu Bay
Keaweula (North Kohala)
Milolii Bay to Keawaiki
Kailua-Kaiwi (Kona)
Onomea Bay
1801 Lava Flow (Keahole or Kiholo)
1850 Lava Flow (South Kona)
1859 Lava Flow (Kiholo)
1919 Lava Flow (Milolii)
1926 Lava Flow (Milolii)

Maui
Honolua

Ahihi-La Perouse (including 1790 Lava Flow at Cape Kinau)

Molokini Island
All protected reef communities

Lanai
Manele
Hulopoe

| Molokai | Oahu |
|---|---|
| Southeast Molokai | Hanauma Bay |
| Kalaupapa | Moku o Loe |
| Honomuni Harbor | (Coconut Island, Kaneohe Bay) |

Kauai
Hoai Bay (Poipu)

Northwestern Hawaiian Islands
Kure Atoll Lagoon
Pearl and Hermes Lagoon
Lisianski Lagoon
Maro Reef Lagoon
French Frigate Shoals Lagoon

(B) Class II.

(i) Existing or planned harbors may be located within nearshore reef flats showing degraded habitats and only where feasible alternatives are lacking and upon written approval by the director, considering environmental impact and the public interest pursuant to section 342D-6, HRS.

Hawaii
Blonde Reef (Hilo Harbor)
Kawaihae Small Boat Harbor

Maui
Lahaina Harbor
Kahului Harbor

Lanai
Manele

Molokai
Kaunakakai Harbor
Hale o Lono Harbor
Palaau (2.4 kilometers/1.5 mile, east of Pakanaka Fishpond)

Oahu
Keehi Boat Harbor
Ala Moana Reef
Honolulu Harbor
Heeia Harbor
Kaneohe Yacht Club
Ala Wai Harbor
Haleiwa Boat Harbor
Maunalua Bay
Pearl Harbor
Kaneohe Bay
Kahe

All other nearshore reef flats not in Class I;

(ii) Offshore reef flats:

Oahu
Kapapa Barrier Reef
Kaneohe Patch Reefs (Kaneohe Bay)

(iii) All other wave exposed or protected reef communities not in Class I.

(3) Specific criteria to be applied to all reef flats and reef communities: No action shall

be undertaken which would substantially risk damage, impairment, or alteration of the biological characteristics of the areas named herein. When a determination of substantial risk is made by the director, the action shall be declared to be contrary to the public interest and no other permits shall be issued pursuant to chapter 342, HRS.

(A) Oxidation-reduction potential (EH) in the uppermost ten centimeters (four inches) of sand patches shall not be less than +100 millivolts;

(B) No more than fifty per cent of the grain size distribution of sand patches shall be smaller than 0.125 millimeters in diameter;

(C) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding equivalent thicknesses for longer than twenty-four hours after a heavy rainstorm as follows:

(i) No thicker than an equivalent of two millimeters (0.08 inch) on living coral surfaces;

(ii) No thicker than an equivalent of five millimeters (0.2 inch) on other hard bottoms;

(iii) No thicker than an equivalent of ten millimeters (0.4 inch) on soft bottoms;

(D) The director shall determine parameters, measures, and criteria for bottom biological communities which may be affected by proposed actions. The location and boundaries of each bottom-type class shall be clarified when situations require their identification. For example, the

location and boundaries shall be clarified when a discharge permit is applied for or a waiver pursuant to Section 301(h) of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1251 et seq.) is required. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality standards for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms which may be applicable to the specific site.

(f) Soft bottom communities.

(1) As used in this section:
"Soft bottom communities" means poorly described and "patchy" communities, mostly of burrowing organisms, living in deposits at depths between two to forty meters (approximately six to one hundred thirty feet). The particle size of sediment, depth below sea level, and degree of water movement and associated sediment turnover dictate the composition of animals which rework the bottom with burrows, trails, tracks, ripples, hummocks, and depressions.

(2) Water areas to be protected:
Class II - All soft bottom communities;

(3) Specific criteria to be applied - Oxidation-reduction potential (EH) in the uppermost ten centimeters (four inches) of sediment should not be less than -100 millivolts. The location and boundaries of each bottom-type class shall be clarified when situations require their identification. For

example, the location and boundaries shall be clarified when a discharge permit is applied for or a waiver pursuant to Section 301(h) of the Act is required. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 04 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-8 Specific criteria for recreational areas. (a) In inland recreational waters:

(1) Enterococcus content shall not exceed a geometric mean of 33 per one hundred milliliters in not less than five samples which shall be spaced to cover a period between 25 and 30 days. No single sample shall exceed the single sample maximum of 89 CFU per 100 milliliters or the site-specific one-sided 82 per cent confidence limit.

(2) Inland recreational waters in which enterococcus content does not exceed the standard shall not be lowered in quality.

(3) At locations where sampling is less frequent than five samples per twenty-five to thirty days, no single sample shall exceed the single sample maximum nor shall the geometric mean of these samples taken during the 30-day period exceed 33 CFU per 100 milliliters.

(4) Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing or wading areas. Warning signs shall be posted at

locations where human sewage has been identified as temporarily contributing to the enterococcus count.

(b) In marine recreational waters:

(1) Within 300 meters (one thousand feet) of the shoreline, including natural public bathing or wading areas, enterococcus content shall not exceed a geometric mean of 35 CFU per 100 milliliters in not less than five samples which shall be spaced to cover a period between twenty-five and thirty days. No single sample shall exceed the single sample maximum of 104 CFU per 100 milliliters or the site-specific one-sided 75 per cent confidence limit. Marine recreational waters along sections of coastline where enterococcus content does not exceed the standard, as shown by the geometric mean test described above, shall not be lowered in quality.

(2) At locations where sampling is less frequent than five samples per twenty-five to thirty days, no single sample shall exceed the single sample maximum nor shall the geometric mean of these samples taken during the thirty-day period exceed 35 CFU per 100 milliliters.

(3) Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing or wading areas. Warning signs shall be posted at locations where human sewage has been identified as temporarily contributing to the enterococcus count. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am

and comp 04/17/00; am and comp 10/2/04; am and comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-9 Zones of mixing. (a) As used in this section "zones of mixing" means limited areas around outfalls and other facilities to allow for the initial dilution of waste discharges.

(b) Zones of mixing for the assimilation of domestic, agricultural, and industrial discharges which have received the best degree of treatment or control are recognized as being necessary. It is the objective of these limited zones to provide for a current realistic means of control over the placement and manner of discharges or emissions so as to achieve the highest attainable level of water quality or otherwise to achieve the minimum environmental impact considering initial dilution, dispersion, and reactions from substances which may be considered to be pollutants.

(c) Establishment, renewal, and termination.

(1) Application for establishment of a zone of mixing shall be made concurrently with any discharge permits whenever applicable and the conditions of a zone of mixing shall be incorporated as conditions of the discharge permits. Every application for a zone of mixing shall be made on forms furnished by the director and shall be accompanied by a complete and detailed description of present conditions, how present conditions do not conform to standards, and other information as the director may prescribe;

(2) Each application for a zone of mixing shall be reviewed in light of the descriptions, statements, plans, histories, and other supporting information as may be submitted

upon the request of the director, and in light of the effect or probable effect upon water quality standards established pursuant to this chapter;

(3) Whenever an application is approved, the director shall establish the zone of mixing, taking into account the environmental impact, including but not limited to factors such as the protected uses of the body of water, existing natural conditions of the receiving water, character of the effluent, and the adequacy of the design of the outfall and diffuser system to achieve maximum dispersion and assimilation of the treated or controlled waste with a minimum of undesirable or noticeable effect on the receiving water;

(4) Approval of a zone of mixing shall be made either after a public hearing is held by the director in the county where the source is situated, in accordance with chapters 91 and 92, HRS and the rules of practice and procedures of the department, or after the public notification and comment process duly established for a discharge permit in the case when the zone of mixing is being considered concurrently with the discharge permit;

(5) No zone of mixing shall be established by the director unless the application and the supporting information clearly show that:

(A) The continuation of the function or operation involved in the discharge by the granting of the zone of mixing is in the public interest;

(B) The discharge occurring or proposed to occur does not substantially endanger human health or safety;

(C) Compliance with the existing water quality standards from which a zone of mixing is sought would produce serious hardships without equal or greater benefits to the public; and

(D) The discharge occurring or proposed to occur does not violate the basic standards applicable to all waters, will not unreasonably interfere with any actual or probable use of the water areas for which it is classified, and has received (or in the case of a proposed discharge will receive) the best degree of treatment or control;

(6) Any zone of mixing or renewal thereof shall be established within the requirements of this section and for time periods and under conditions consistent with the reasons therefore and within the following limitations:

(A) If the zone of mixing is established on the grounds that there is no reasonable means known or available for the adequate prevention, control, or abatement of the discharge involved, it shall be allowed only until the necessary means for prevention, control or abatement become practicable, and subject to the taking of any substitute or alternative measures that the director may prescribe. No renewal of a zone of mixing established under this subsection shall be allowed without a thorough review of known and available means of preventing, controlling, or abating the discharge involved;

(B) The director may issue a zone of mixing for a period not exceeding five years;

(C) Every zone of mixing established under this section shall include, but not be limited to, conditions requiring the applicant to perform appropriate effluent and receiving water sampling including monitoring of bottom biological communities and report the results of each sampling to the director. A program of research to develop reasonable alternatives to the methods of treatment or control in use by the applicant may be required if research is deemed prudent by the director; and

(D) In order to prevent high temperature discharges from violating section 11-54-04(a)(4), no new or increased domestic, industrial, or other controllable source shall discharge at a maximum temperature which will cause temperatures to exceed 3 degrees Celsius above ambient, or 30 degrees Celsius, whichever is less, within one meter of the bottom within a zone of mixing. For discharges with or without submerged outfalls, the director may make a limited allowance for higher discharge temperatures if there is satisfactory demonstration that the elevated temperature will not cause damage to the local aquatic community

(7) Any zone of mixing established pursuant to this section may be renewed from time to time on terms and conditions and for periods not exceeding five years which would be appropriate on initial establishment of a zone of mixing, provided that the applicant for renewal had met all of the conditions specified in the immediately preceding

mixing, and provided further that the renewal and the zone of mixing established in pursuance thereof shall provide for the discharge not greater in quantity of mass emissions than that attained pursuant to the terms of the immediately preceding zone of mixing at its expiration. Any new zones of mixing or requests for zone of mixing renewals for wastewater treatment plants (WWTP) performing primary treatment shall comply with Section 301(h) of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1251). No renewal shall be allowed except upon application. Any renewal application shall be made at least one hundred and eighty days prior to the expiration of the zone of mixing;

(8) No zone of mixing established pursuant to this part shall be construed to prevent or limit the application of any emergency provisions and procedures provided by law;

(9) The establishment of any zone of mixing shall be subject to the concurrence of the U.S. Environmental Protection Agency;

(10) Each mixing zone may be subject to revocation, suspension, or modification if, after notice and opportunity for a hearing pursuant to chapter 91, HRS and the rules of practice and procedures of the department, the director determines that the terms specified in section 342D-6, HRS have been violated. In taking any action, the director may consider operating records, compliance investigations, or other information regarding discharge quality or impact on receiving waters. The action shall be effected by giving written notice to the permittee, which shall contain the reasons for the action;

(11) The director shall be notified within thirty days of the permanent discontinuance of a discharge. The zone of mixing shall terminate thirty days after such notification has been received;

(12) Upon expiration of the period stated in the designation, the zone of mixing shall automatically terminate and no rights shall become vested in the designee. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-9.1 Water quality certification. As used in sections 11-54-9.1.01 to 11-54-9.1.10:

"33 CFR" means the Code of Federal Regulations, Title 33, Corps of Engineers, Department of the Army, Department of Defense, revised as of July 1, 1998, unless otherwise specified.

"40 CFR" means the Code of Federal Regulations, Title 40, Protection of the Environment, revised as of July 1, [1998] 2001, unless otherwise specified.

"Act" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-483 and Public Law 97-117, 33 U.S.C. Section 1251 et. seq.

"Agent" means a duly authorized representative of the owner as defined in section 11-55-7(b).

"Department" means the state department of health.

"Director" means the director of the department or an authorized agent.

"Discharge" means the same thing as defined in Section 502(16) of the Act.

"Discharge of a pollutant" and "discharge of pollutants" means the same thing as defined in Section 502(12) of the Act.

"Duly authorized representative" means a person or position as defined in 40 CFR Section 122.22(b).

"HRS" means the Hawaii Revised Statutes.

"License or permit" means any permit, certificate, approval, registration, charter, membership, statutory exemption or other form of permission granted by an agency of the federal government to conduct any activity which may result in any discharge into navigable waters.

"Licensing or permitting agency" means any agency of the federal government to which a federal application is made for a "license or permit."

"Navigable waters" means the waters of the United States, including the territorial seas.

"Owner" means the person who owns any "facility" or "activity" which results in any discharge into navigable waters.

"Pollutant" means the same thing as defined in Section 502(6) of the Act.

"Territorial seas" means the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of three miles.

"Water quality certification" or "certification" means a statement which asserts that a proposed discharge resulting from an activity will not violate applicable water quality standards. A water quality certification is required by Section 401 of the Act from any applicant for a federal license or permit to conduct any activity, including the construction or operation of facilities which may result in any discharge into navigable waters.

"Water quality certification application" means any forms provided by the director for use in obtaining the water quality certification.

"Water quality standards" means standards established pursuant to Section 10(c) of the Act, and state-adopted water quality standards for navigable waters which are not interstate waters.

"Waters of the United States" or "waters of the U.S." means:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate "wetlands";

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(A) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(B) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(C) Which are used or could be used for industrial purposes by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under this definition;

(5) Tributaries of waters identified in paragraphs (1) through (4) of this definition;

(6) The territorial sea; and

(7) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this definition. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-9.1.01 Water quality certification; contents of certification. (a) A certification made by the department shall include:

(1) The legal name(s), street address, contact person's name and position title, and telephone and fax numbers of the owner and, if applicable, its duly authorized representative;

(2) A statement that the director has either:

(A) Examined the application made by the owner or its duly authorized representative to the licensing or permitting agency (specifically identifying the number or code affixed to the application) and bases its certification upon an evaluation of the information contained in the application which is relevant to water quality considerations; or

(B) Examined other information provided by the owner or its duly authorized representative sufficient to permit the director to make the statement described in paragraph (a)(3)

(3) A statement that there is reasonable assurance that the activity will be

conducted in a manner which will not violate applicable water quality standards;

(4) A statement of any conditions which the director considers necessary or desirable with respect to the discharge resulting from an activity; and

(5) Other information the director determines to be appropriate.

(b) The director shall issue the certification after evaluating the complete water quality certification application, comments received during the public comment period, any record of a public hearing held pursuant to section 11-54-09.1.03, other information and data the director considers relevant, and after the director determines that there is reasonable assurance that applicable water quality standards will not be violated and the best practicable methods of control will be applied to a discharge resulting from an activity including the construction and operation of a facility.

(c) The department shall process applications for permits and water quality certifications for the reconstruction, restoration, repair, or reuse of any Hawaiian fishpond that meets the requirements of chapter 183B, HRS, before all other permits and certifications. The director shall render a decision on the completeness of any application for the permit or water quality certification within thirty days of receipt. Applications for fishpond reconstruction, restoration, or repair that are incomplete shall be denied without prejudice. The director shall render a decision on any complete application for a permit or water quality certification for any fishpond within one hundred fifty days.

(d) The director, at the director's discretion or after consideration of information presented by the owner or its duly authorized representative, the licensing or permitting agency, other government agencies, or interested parties, may modify or revoke

an issued certification or waiver. [Eff and comp 4/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D6.5, 342D-53) (Imp: HRS §§342D-342D-6, 342D6.5, 342D-5)§11-54-09.1.02

§11-54-9.1.02 Water quality certification; contents of water quality certification application. (a) The owner or its duly authorized representative shall submit a complete water quality certification application for the discharge resulting from an activity. The water quality certification application shall include at a minimum:

(1) The legal name(s), street address, contact person's name and position title, and telephone and fax numbers of the owner and, if applicable, its duly authorized representative;

(2) The company or organization name, contact person's name and position title, and telephone and fax numbers of the emergency contact(s);

(3) The name, street address, contact person's name and position title, telephone and fax numbers, island, and tax map key number(s) for the project;

(4) Associated existing or pending federal and environmental permits and corresponding file numbers;

(5) The name(s) of the navigable water where the discharge occurs, the latitude and longitude of the discharge point(s), the classification of the navigable water, and the associated existing recreational uses;

(6) The scope of work or a description of the overall project including: the construction or operation of facilities which may result

in discharges into navigable waters; the proposed discharge resulting from an activity; and specific biological, chemical, physical, thermal, and other pertinent characteristics of the discharge resulting from an activity;

(7) If applicable, a description of the function and operation of equipment or facilities to control discharges, including specification of the methods of control to be used;

(8) The estimated dates on which the activity will begin and end and the date or dates on which the discharge(s) will take place;

(9) If applicable, a description of the methods and means being used or proposed to monitor the quality and characteristics of the discharge and the operation of equipment or facilities employed in the control of the proposed discharges and a map showing the location(s) of the monitoring point(s);

(10) The statement of assurance, statement of choice for publication, and if applicable, an authorization statement, with the owner's original signature. Any signatures required for the water quality certification application shall be provided as described in 40 CFR Section 122.22(a);

(11) Supporting documentation (e.g. maps, plans, specifications, copies of associated federal permits or licenses, federal applications, Environmental Assessments or Environmental Impact Statements, as applicable, etc.);

(12) Additional information regarding any irregularities or unique features of the project; and

(13) Additional information as required by the director.

(b) The director shall notify the owner or its duly authorized representative in writing if a water

quality certification application is incomplete or otherwise deficient. A description of the additional information necessary to complete the water quality certification application or to correct the deficiency shall be included in the written notice. If a water quality certification application is incomplete or otherwise deficient, processing of the water quality certification application shall not be completed until the time the owner or its duly authorized representative has supplied the information or otherwise corrected the deficiency. Failure to provide additional information or to correct a deficiency shall be sufficient grounds for denial of the certification or termination of the processing of the water quality certification application.

(c) The director shall notify the owner or its duly authorized representative in writing when a water quality certification application is considered complete. The director shall act on a request for certification within a period which shall not exceed one year from the date when the water quality certification application was considered complete.

(d) The owner or its duly authorized representative shall notify the department in writing of changes which may affect the water quality certification application and certification process.

(e) Each owner who submits a water quality certification application shall pay a filing fee of $1,000. This filing fee shall be submitted with the water quality certification application and shall not be refunded nor applied to any subsequent water quality certification application following final action of denial or termination of the processing of the water quality certification application.

(1) Fees shall be made payable to the "State of Hawaii" in the form of a cashier's check or money order;

(2) Water quality certification application(s) submitted by the U.S. Army Corps of

Engineers, Honolulu Engineer District, for the purpose of adopting regional or nationwide general permit(s), in accordance with 33 CFR Parts 325 and 330, respectively, shall be exempt from the payment of filing fees.

(f) If a project or activity requiring a federal permit or license involves or may involve the discharge of a pollutant or pollutants and is initiated or completed without a water quality certification, the director may process an After the Fact water quality certification application as follows: After the Fact water quality certification application may be accepted and processed only for the limited purpose of deeming projects or activities requiring federal permits or licenses to be properly permitted or licensed forward of the date of the water quality certification or waiver. No water quality certification or waiver shall be issued which allows the retroactive permitting or licensing of projects or activities before the date the water quality certification or waiver was issued. A water quality certification or waiver may be issued if the following criteria are met: (1) the project or activity is not the subject of an on-going enforcement action by the federal, state or county government; (2) any adverse impacts upon water quality resulting from the project or activity have been mitigated to the maximum extent feasible, and (3) the project or activity will not cause or contribute to any lack of attainment of water quality standards set forth in this chapter.

(g) Written notification by the department under section 11-54-9.1 is complete upon mailing or sending a facsimile transmission of the document or actual receipt of the document by the owner or its duly authorized representative. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp

FEB 0 4 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-9.1.03 Water quality certification; notice and hearing. The director may provide the opportunity for public comment or hearing(s) or both to consider the issuance of a water quality certification. A notice shall be published in accordance with chapters 91 and 92, HRS. The director shall inform the owner or its duly authorized representative in writing that the action has been taken. All publication and mailing costs associated with the public notification of the director's tentative determinations with respect to the water quality certification application shall be paid by the owner to the appropriate newspaper agency or agencies determined by the director. Failure to provide and pay for public notification, as considered appropriate by the director, may result in a delay in the certification process. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; ~~am~~ and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-9.1.04 Water quality certification; waiver. (a) If the director fails or refuses to act on a request for certification within one year after receipt of a complete water quality certification application, then the certification requirements of section 11-54-9.1 shall be waived with respect to the federal application.

(b) If the discharge resulting from an activity receives a determination to be covered under a nationwide permit authorization, thereby fulfilling specific conditions of that permit pursuant to 33 CFR Sections 330.4, 330.5, and 330.6, then the director

will determine, on a case-by-case basis, which projects are considered minor and non-controversial. Certification requirements of section 11-54-9.1 shall be waived for minor and non-controversial activities within one year of receipt of a complete water quality certification application. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; ~~am~~ and comp 10/2/04; comp 06/15/09; comp FEB 04 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-9.1.05 Water quality certification; adoption of new water quality standards. (a) The licensee or permittee shall comply with any new water quality standards as adopted by the department.

(b) In any case where:

(1) A certification or waiver was issued without applicable water quality standards;

(2) Water quality standards applicable to the waters into which the activity may discharge are subsequently established before the activity is completed; or

(3) The director determines that the activity is violating new water quality standards

The director shall then notify the licensee or permittee and the licensing or permitting agency of the violation.

(c) If the licensee or permittee fails within one hundred eighty days of the date of the notice to cease the violation, the director shall notify the licensing or permitting agency that the licensee or permittee has failed to comply with the standards. The director, at the director's discretion, shall also revoke the certification or waiver or recommend suspension of the applicable license or permit pursuant to Section 401 of the Act.

(d) The director shall notify the licensing or permitting agency that, in the director's opinion,

there is reasonable assurance that applicable water quality standards will not be violated because the licensee or permittee took appropriate action to comply with the applicable water quality standards after their license or permit was suspended pursuant to subsection (c).

(e) This section shall not preclude the department from taking other enforcement action authorized by law. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 04 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D-53s)(Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-9.1.06 Water quality certification; inspection of facility or activity before operation. Where any facility or activity has received certification or waiver pursuant to sections 11-54-9.1.01 to 11-54-9.1.09 in connection with the issuance of a license or permit for construction, and where the facility or activity is not required to obtain an operating license or permit, the director, prior to the initial operation of the facility or activity, shall be afforded the opportunity to inspect the facility or activity for the purpose of determining if the manner in which the facility or activity will be operated or conducted will violate applicable water quality standards. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 04 2010 ] Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-9.1.07 Water quality certification; notification to licensing or permitting agency. If the director, after an inspection pursuant to section 11-54-9.1.06 determines that operation of the proposed

facility or activity will violate applicable water quality standards, the director shall so notify the owner or, if applicable, its duly authorized representative and the licensing or permitting agency. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-9.1.08 Water quality certification; termination or suspension. Where a licensing or permitting agency, following a public hearing, suspends a license or permit after receiving the director's notice and recommendation pursuant to section 11-54-9.1.07 the owner or its duly authorized representative may submit evidence to the director, that the facility or activity has been modified so as not to violate applicable water quality standards. If the director determines that the applicable water quality standards have not been and will not be violated, the director shall so notify the licensing or permitting agency. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-9.1.09 Water quality certification; review and advice. The director may, and upon request shall, provide licensing and permitting agencies with determinations, definitions, and interpretations to the meaning and content of state water quality standards. The director may, and upon request shall, also advise licensing and permitting agencies of the status of compliance by the owner(s) of a water quality certification with the conditions and

requirements of applicable water quality standards. [Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

§11-54-10 Water quality analyses. (a) Laboratory analysis shall be performed by a laboratory approved by the department.

(b) Where applicable, analysis to determine compliance with these rules shall be by:

| Parameter | Reference |
|---|---|
| Sample Collection (Phytoplankton and other Bioassays) | Standard Methods for the Examination of Water and Waste Water, twentieth edition, APHA |
| Sample Preservation and Holding Time, Bacteriological and Chemical Methodology | "Guidelines Establishing Test Procedures for Analysis of Pollutants," Federal Register, July 1, 1998 (40 CFR 136) and "Technical Amendments," [Federal Register, July 1, 1998 (40 CFR 136).] 40 CFR 136, revised as of July 1, 2001. |
| | "A Manual of Chemical and Biological Methods for Seawater Analysis" T.R. Parsons, Y. Maita, and C.M. Lalli, 1984, Pergamon Press, New York. |

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|---|---|
| | "Methods of Seawater Analysis", 2nd, Revised and Extended Edition, ed. by K. Grashof, M. Erhardt, K. Kremling, 1983. Verlag Chemie, Weinheim, Germany. |
| Toxicity Test | EPA/600/4-91/002 Short-Term Methods For Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, July 1994, |
| | or: |
| | EPA/600/4-90-027F Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. Cincinnati, Ohio, EMSL, August 1995. |
| | or: |
| | EPA-600/4-91/003, Short-Term methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. ORD, Cincinnati, Ohio, July 1994. |

| | |
|---|---|
| Quality Control (Bacteriological and Biology) and Chemistry | EPA/600/4-79-019, Handbook for Analytical Quality Control in Water and Wastewater Laboratories, March 1979. |
| Kona Coast Area Specific Standards | Rationale for the Development of Area-Specific Water Quality Criteria for the West Coast of The Island of Hawaii and Procedures for Their Use. Hawaii State Department of Health. March 1997.<br><br>or:<br><br>As otherwise previously specified or approved by the director. |

[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-11 Revision. These water quality criteria are based upon the best currently available data. Studies made in connection with the implementation program may suggest improvements to this chapter. For this reason, the chapter will be subject to periodic review and, where necessary, to change.

Any change will be made only after public hearing, held in compliance with chapter 91, HRS and the rules of practice and procedures of the department. [Eff

11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-12 Severability. If any provisions of this chapter, or the application thereof to any person or circumstances, is held invalid, the invalidity does not affect other provisions or application of this chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp 10/2/04; comp 06/15/09; comp FEB 0 4 2010 ] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

# RATIONALE FOR THE PROPOSED REVISIONS TO DEPARTMENT OF HEALTH WATER QUALITY STANDARDS

STATE OF HAWAII DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH ADMINISTRATION
HONOLULU, HAWAII

March 13, 2009 Version

RATIONALE FOR THE PROPOSED REVISIONS TO DEPARTMENT OF HEALTH WATER QUALITY STANDARDS (March 13, 2009 Version)

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## Part I. Executive Summary

This document explains two proposed revisions to subsection 11-54-4(b)(3) of the State Water Quality Standards. The proposed revisions to numeric standards for chlordane and dieldrin (applicable to all waters, for fish consumption) respond to a Petition for Rule Amendment submitted to the Department of Health (DOH) by the City and County of Honolulu Department of Environmental Services (Takemura, 2008). The current standards (Department of Health, 2004), promulgated in 1990, are based on 1986 U.S. Environmental Protection Agency (EPA) recommendations (Office of Water Regulations and Standards, 1986). We propose replacing the current standards with the latest EPA National Recommended Water Quality Criteria (Office of Science and Technology, 2002 & 2006.), which incorporate over 20 years of new, nationwide scientific research, particularly concerning the carcinogenicity of toxic pollutants.

Both the existing and proposed standards are derived on the basis of a lifetime excess cancer risk level of $10^{-6}$, which EPA policy states reflects an appropriate risk for the general population (Office of Science and Technology, 2000). This risk level implies one additional cancer per one million people, assuming they all consume fish and shellfish from State waters at the same rate over an entire lifetime. The consumption rates used to calculate the existing and proposed standards are similar (within 12 to 14% of each other). Therefore, most of the difference between the numerical value of the existing and proposed standards is attributable to scientifically documented and nationally- accepted reductions in the estimated carcinogenicity of chlordane (78% reduction in potency factor) and dieldrin (47% reduction in potency factor).

DOH believes that the proposed standards protect the health of Hawaii consumers. EPA policy states that both $10^{-6}$ and $10^{-5}$ cancer risk levels are acceptable for the general population and that highly exposed populations should not exceed a $10^{-4}$ risk level (Office of Science and Technology, 2000a). This provides for a 100-fold safety factor in standards, like ours, that are based on a $10^{-6}$ risk level, since individuals consuming fish and shellfish at up to 10 times the average rate would not exceed a $10^{-5}$ risk level, and those consuming fish and shellfish at 100 times the average rate (almost 4 pounds per day) would still not exceed a $10^{-4}$ risk level. In addition, many other conservative assumptions were used in the development of the other factors used to derive the criteria. Thus the proposed, federally-recommended chlordane and dieldrin criteria provide substantial and sufficient public health protection for fish consumption, and are developed with nationwide resources and expertise that cannot be matched at the state level.

## Part II. Existing and Proposed Chlordane and Dieldrin Criteria

Table 1 (below) compares the proposed chlordane and dieldrin criteria, as recommended by EPA (Office of Science and Technology, 2006), with the existing chlordane and dieldrin criteria in Hawaii Administrative Rules Title 11, Chapter 54 (HAR §11-54, effective October 02, 2004) and the EPA recommendations upon which they are based (Office of Water Regulations and Standards, 1986). The proposed chlordane criterion is greater than both the 1986 EPA recommendation and the existing State criterion, whereas the proposed dieldrin criterion is lower than the 1986 EPA recommendation but greater than the existing State criterion. However, taking into account the typographical error in the existing State chlordane criterion, note that for each pollutant, both of the EPA criteria (1986 and 2006) and the existing State criteria are all within the same order of magnitude. The rationale presented below (Part III) discusses the additional scientific evidence supporting the adoption of the proposed criteria.

Table 1. Existing and proposed toxic pollutant criteria for chlordane and dieldrin

| Line in EPA 2006 table | Pollutant | CAS[1] number | Fish Consumption in micrograms per liter | | | FR[2] Cite/Source |
|---|---|---|---|---|---|---|
| | | | EPA 1986 | EPA 2006 | HAR §11-54-4(b)(3) | |
| 107 | Chlordane | 57749 | 0.00048 | 0.00081 | 0.000016[3] | 65FR66443 |
| 111 | Dieldrin | 60571 | 0.000076 | 0.000054 | 0.000025 | 65FR66443 |

[1]CAS = Chemical Abstract Services *(www.cas.org)*

[2]FR = Federal Register *(www.gpoaccess.gov/fr)*

[3]Typographical error in rule. The correct value of 0.00016 is currently being adopted through a separate rulemaking process.

## Part III. Rationale for Proposed Revisions to Chlordane and Dieldrin Criteria

### A. Chemical Background and Purpose of Standards

Chlordane was first produced in 1947 and was used as a broad-spectrum insecticide for agricultural crops, livestock, and lawns and gardens, and also for underground treatment around the foundation of homes. EPA cancelled aboveground uses in 1978 because of concern about cancer risks, evidence of human exposure, and danger to wildlife, and cancelled all uses after 1988. Thus it is now a legacy pollutant with few, if any new sources adding to the existing contaminant pool. Chlordane is insoluble in water, but residues still exist in soils and bed sediments, and chlordane bioaccumulates in the fatty tissue of fish and humans. Chlordane has also been detected at various concentrations in ambient water, finished drinking water, rainwater, plankton, earthworms, birds, bird eggs, and several mammals (Criteria and Standards Division, 1980b).

From the 1950s until 1970, aldrin (which quickly transforms into dieldrin in the environment) and dieldrin were two of the most widely used pesticides in the U.S., particularly for control of corn, cotton, and citrus pests. The U.S. Department of Agriculture cancelled all uses of aldrin and dieldrin in 1970. Although EPA restricted uses after 1974, these compounds, particularly aldrin, continued to be used locally for ground termite treatment and non-food seed and plant dipping until 1987, when the manufacturer voluntarily canceled the registration. Dieldrin is

quite persistent in the environment, and like chlordane remains as a legacy pollutant with few, if any new sources adding to the existing contaminant pool (Criteria and Standards Division, 1980a).

The known presence and accumulation of toxic pollutants, including chlordane and dieldrin, in bed sediments and fish tissue from Hawaii waters was part of the rationale for initially establishing numeric state standards for these pollutants in 1990. More recent surveys and observations confirm their continuing presence (Brasher & Anthony, 2000), including occasional detection in ambient surface water. The numeric standards for chlordane and dieldrin applicable to all waters, for fish consumption, are calculated to prevent public health impacts from the long-term consumption of contaminated aquatic organisms. These human health criteria, in conjunction with the acute and chronic aquatic life criteria, are also intended to (1) prevent pollutant concentrations in commercially or recreationally important aquatic species from exceeding applicable U.S Food and Drug Administration action levels, thus avoiding negative effects on marketability, and (2) protect wildlife, including fishes and birds that consume aquatic organisms, from adverse effects. The standards provide a mechanism for limiting sources of toxic pollutants in waste discharges, and for determining if a waterbody receives excessive pollutant loading (Environmental Planning Office, 1989).

B. Methodology for Criteria Development

EPA calculates human health criteria (numeric standards for fish consumption) using data from three fields of scientific research – human toxicology, aquatic organism bioaccumulation, and human consumption of fish and shellfish – in the context of public health policy decisions about acceptable risk. The existing chlordane and dieldrin criteria are based on EPA's 1980 methodology for the development of water quality criteria to protect human health (Federal Register Vol. 45, No. 231); EPA's 1986 recommend criteria (Office of Water Regulations and Standards, 1986), based on earlier criteria documents (Criteria and Standards Division, 1980a and 1980b); and DOH's adoption of the 1986 EPA recommendations (Environmental Planning Office, 1989). The proposed revisions to these criteria are based on EPA revisions to the 1980 methodology (Federal Register Vol. 65, No. 214; Office of Science and Technology, 2000a & 2000b); significant scientific advances in cancer risk assessments and exposure assessments (U.S. Environmental Protection Agency, 1997; National Center for Environmental Assessment, 1998 & 1991; Science Applications International Corporation, 2002); and resulting EPA recommendations and actions (Office of Science and Technology, 2002 & 2006; Federal Register Vol. 65, No. 97). The following discussion draws directly and heavily from EPA documentation and synthesis of these methodological revisions, scientific advances, and new recommendations.

*Human Toxicology* - If human or animal studies on a contaminant indicated that it induced a statistically significant carcinogenic response, the 1980 Ambient Water Quality Criteria (AWQC) National Guidelines treated the contaminant as a carcinogen and derived a low-dose cancer potency factor from available animal data using the linearized multistage model (LMS). The LMS, which uses a linear, nonthreshold assumption for low-dose risk, was used by EPA as a science policy choice in protecting public health, and represented a plausible upper limit for low-dose risk. The cancer potency factor (also known as slope factor) is used in risk assessment to estimate a lifetime probability of an individual developing cancer as a result of exposure to a

particular level of a potential carcinogen. It quantitatively expresses the relationship between dose and response in terms of the estimated upper-bound incremental lifetime risk per mg/kg average daily dose. In other words, it is the cancer risk (proportion affected) per unit of dose, expressed in milligrams of substance per kilogram of body weight per day. National policy and prevailing opinion in the expert community establish that the human health criteria for carcinogens should be derived assuming lifetime exposure of a 70 kg adult male over a 70-year time period.

Since 1980, EPA risk assessment practices have evolved significantly in all of the major areas for AWQC development: that is, cancer and noncancer risk assessments, exposure assessments, and bioaccumulation. When the 1980 AWQC National Guidelines were developed, EPA had not yet developed formal cancer or noncancer risk assessment guidelines. Since then, EPA has published several cancer risk assessment guidelines (most recently in Risk Assessment Forum, 2005; see Background at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=116283). In 1986, EPA made available to the public the Integrated Risk Information System (IRIS). IRIS is a database that contains risk information on the cancer and noncancer effects of chemicals. The IRIS assessments are peer reviewed and represent EPA consensus positions across the Agency's program and regional offices. In particular, there have been advances in the use of mode of action (MOA) information to support both the identification of potential human carcinogens and the selection of procedures to characterize risk at low, environmentally relevant exposure levels. For example, the Proposed Guidelines for Carcinogen Risk Assessment (Office of Research and Development, 1996) presented revised procedures to quantify cancer risk at low doses, replacing the default use of the LMS model. Thus, given new cancer potency information from IRIS, different cancer potency factors were used to calculate the existing and proposed chlordane and dieldrin criteria, as shown in Table 2 (below).

*Aquatic Organism Bioaccumulation* - Given long-term exposure, the concentration of a pollutant accumulated in an organism may be orders of magnitude higher than the ambient water column concentration. To calculate human health criteria, scientists determine the bioconcentration factor of a toxic pollutant – the concentration rate to which a pollutant will accumulate in aquatic organisms, relative to the concentration of the pollutant in water. The bioconcentration factors used to calculate the existing and proposed chlordane and dieldrin criteria, shown below in Table 2, have not changed since 1980.

*Human consumption of fish and shellfish* - Once both the cancer potency factor and bioconcentration factor are known for a pollutant, a water column concentration can be calculated which will ensure that the pollutant cannot bioaccumulate in aquatic organisms to a level that will cause a selected lifetime cancer risk level to be exceeded (**see Equation for Deriving Human Health Criteria Based on Carcinogenic Effects** below). This calculation is based upon the average amount of fish and shellfish a person is likely to consume. The daily consumption figures used to calculate the existing and proposed chlordane and dieldrin criteria are shown below in Table 2.

Due to the lack of adequate current fish consumption data for Hawaii, we use the updated national default fish consumption rate (used to calculate the 2002 and 2006 EPA National Recommended Criteria) to calculate the proposed State criteria. This rate (17.5 grams/person/day) approximates the 90$^{th}$ percentile of freshwater/estuarine finfish and shellfish

consumption estimates obtained for adult humans by the national survey (Office of Science and Technology, 2002; Science Applications International Corporation, 2002), and therefore represents the estimated average amount consumed by all but 10% of the population. A summary of these national survey results for finfish and shellfish from various habitats is shown below in Table 3. Note that selecting results for fish species from different habitats, and for consumption estimates from different statistical distributions (Statistic), would drive the calculated water quality criteria lower for higher fish consumption, and higher for lower fish consumption (see **Equation for Deriving Human Health Criteria Based on Carcinogenic Effects** below).

*Acceptable Risk* – EPA policy states that both $10^{-6}$ and $10^{-5}$ risk levels are acceptable for the general population and that highly exposed populations should not exceed a $10^{-4}$ risk level (Office of Science and Technology, 2000a). The existing and proposed State of Hawaii criteria are set at the one in one million lifetime excess cancer risk level ($10^{-6}$). Human health criteria for carcinogens are based on chosen risk levels that inherently reflect, in part, the exposure parameters used to derive those values. Therefore, changing the exposure parameters also changes the risk. Specifically, the incremental cancer risk levels are relative, meaning that any given criterion associated with a particular cancer risk level is also associated with specific exposure parameter assumptions (e.g., intake rates, body weights). When these exposure parameter values change, so does the relative risk.

For example, for criteria derived on the basis of a cancer risk level of $10^{-6}$, individuals consuming up to 10 times the assumed rate would not exceed a $10^{-5}$ risk level. Similarly, individuals consuming up to 100 times the assumed rate would not exceed a $10^{-4}$ risk level. Thus, for criteria (like our proposed criteria) based on EPA's default fish intake rate (17.5 grams/person/day) and a risk level of $10^{-6}$, individuals consuming fish and shellfish at up to 10 times the average rate would not exceed a $10^{-5}$ risk level. Those consuming a pound of fish and shellfish per day (454 grams/person/day) would potentially experience between a $10^{-5}$ and a $10^{-4}$ risk level (closer to a $10^{-5}$ risk level), and those consuming fish and shellfish at 100 times the average rate (almost 4 pounds per day) would still not exceed a $10^{-4}$ risk level. This provides for a 100-fold safety factor in the proposed standards. In other words, we have an adequate margin of safety in using the Federal numbers even for subsistence eaters because of the stringent cancer risk level.

**Equation for Deriving Human Health Criteria Based on Carcinogenic Effects**
(adapted from Federal Register Vol. 45, No. 231 & Office of Water, 1994).

$$C = \frac{(WT \times P)}{q1^{*}(DFC \times BCF)}$$

where:

- C = water quality criteria (mg/l)
- WT = weight of an average human adult (70 kg)
- P = lifetime risk level ($10^{-6}$)
- $q_1^{*}$ = cancer potency factor $(mg/kg/day)^{-1}$
- DFC = daily fish consumption (kg fish/day)
- BCF = bioconcentration factor (mg toxicant/kg fish divided by mg toxicant/l water)

Table 2. Cancer Potency Factor ($q_1$*), Bioconcentration Factor (BCF), and Daily Fish Consumption (DFC) used to calculate existing and proposed toxic pollutant criteria (fish consumption) for chlordane and dieldrin

| Criterion | $q_1$* (oral slope factor) $(mg/kg/day)^{-1}$ | BCF[1] | DFC[2] kg/day |
|---|---|---|---|
| Existing Chlordane Criterion | 1.6075[3] | 14,100 | .0199 |
| Proposed Chlordane Criterion | 0.35[4] | 14,100 | .0175 |
| Existing Dieldrin Criterion | 30.37[5] | 4,670 | .0199 |
| Proposed Dieldrin Criterion | 16[4] | 4,670 | .0175 |

[1]Based on the mean of two steady-state BCF values, normalized to 1% lipids, and adjusted to 3% lipids (the weighted average lipids % for consumed fish and shellfish), yielding the weighted average bioconcentration factor for the pollutant and the edible portion of all freshwater and estuarine aquatic organisms (Criteria and Standards Division, 1980a & 1980b).

[2]Existing criteria are based on an assumption that the Hawaii general population consumes 19.9 grams fish/day, which is 3.1 times the 1986 national freshwater/estuarine DFC of 6.5 grams fish /day (Environmental Planning Office, 1989; Office of Water Regulations and Standards, 1986, based on Stanford Research Institute International, 1980). Proposed criteria are based on the updated national default freshwater/estuarine DFC of 17.5 grams fish/day (Office of Science and Technology, 2002, based on Science Applications International Corporation, 2002). Note that this value is within 12 to 14% of the Hawaii DFC used to calculate the existing criteria, and that this Hawaii DFC is the same as the 2002 national mean DFC for fish species from all habitats (see Table 3 below).

[3]Criteria and Standards Division, 1980b.

[4]National Center for Environmental Assessment, 1991 (Chlordane) & 1998 (Dieldrin). Values in EPA Integrated Risk Information System (IRIS) confirmed by EPA Toxicologist William A. Frez, Ph.D. on March 05, 2009 via IRIS hotline at (202) 566-1676 and reply e-mail.

[5]Criteria and Standards Division, 1980a.

Table 3. Summary of Uncooked Daily Fish Consumption (DFC) Estimates, U.S. Population – Finfish and Shellfish, Individuals of Age 18 or Older (adapted from Office of Science and Technology, 2002)

| Statistic | Estimated DFC (grams/person/day) for fish species from different habitats | | |
|---|---|---|---|
| | Freshwater/Estuarine | Marine | All |
| Mean | 7.50 | 12.41 | **19.91**[2] |
| 90th % | **17.37**[1] | 48.92 | 74.79 |
| 99th % | 143.35 | 150.77 | 215.70 |

[1]Approximates 17.5 grams/person/day national default rate

[2]Equivalent to the DFC used to develop existing State criteria

C. Conclusion

A preliminary survey of 26 other U.S. coastal water jurisdictions indicates that approximately 9 of these other jurisdictions have chlordane criteria that are more conservative than the national recommendation (but within the same order of magnitude), and only 2 have dieldrin criteria that are similarly more conservative. In the case of chlordane, at least 3 of these more conservative criteria appear to be a vestige of earlier federal regulation that has not yet been updated by states to incorporate the newer national recommendations.

DOH believes that the proposed standards are inherently and sufficiently conservative for several reasons, beginning with the selected one in a million lifetime risk level ($10^{-6}$), which is equal to

or more conservative than those routinely used in other DOH human health risk assessments. For example, target excess cancer risks used to develop the soil and groundwater Environmental Action Levels (EALs) range from $10^{-6}$ to $10^{-4}$, depending on the contaminant and taking into considerations such factors as naturally occurring levels, dietary exposure, and uncertainty in toxicity factors (Hazard Evaluation and Emergency Response Office, 2008). The State of Hawaii drinking water Maximum Contaminant Level (MCL) for chlordane of 0.002 mg/l (Department of Health, 2005) equates to a selected cancer risk of $10^{-5}$, and State fish consumption advisories are issued on the basis of $10^{-5}$ risk levels suggested by EPA guidance (Office of Science and Technology, 2000c).

The standards are also conservative because of the assumptions used in estimating the fish consumption factor. These estimates assume that all fish and shellfish consumed are from national/State waters, thus avoiding consideration of the potentially high levels of toxic pollutants in the locally consumed global supply. For example, the research used to establish the fish consumption factor used in the existing Hawaii standards (Hudgins, 1980) estimated that over an eight-year period (from 1970 to 1977), local commercial landings accounted for just 32% of the total Hawaii supply of commercial fish and shellfish (ranging annually from 21% to 46%). Also, of this locally caught seafood, it is likely that much of it is landed in waters that are relatively unaffected by sources of chlordane and dieldrin pollution.

Of the three other factors used to derive a fish consumption standard – cancer potency factor, bioconcentration factor, and consumption rate – the consumption rate is by far the most accurate, even if it is an average value. Bioconcentration factors have wide inter- and intraspecies variability. To account for these and other areas of uncertainty, numerous order-of-magnitude safety factors are used in deriving the final values. Adjustments to the fish consumption factor - even the three-fold increase in the old national figure used in the existing State standards, and the single order-of-magnitude variation in estimated nationwide fish consumption - are minor in comparison (Department of Health, 1989). Also, although cancer risk generally increases as fish consumption increases, there are potentially counterbalancing health benefits to eating more fish (as opposed to other items in the global food supply, which may also have higher levels of toxic pollutants).

The need to establish toxic pollutant criteria for the State of California was an impetus for much of the scientific work that generated the 2002 and 2006 National Recommended Water Quality Criteria, many of which were eventually promulgated by federal regulation as the criteria for the inland surface waters, enclosed bays and estuaries of that state (Federal Register Vol. 65, No. 97). The nationwide resources and expertise for this effort cannot be matched at the state level. Given California's large fisheries, large fish-eating populations, large scientific community, and more heavily polluted waters, we assume that the National Recommended Water Quality Criteria are equally suitable for Hawaii, and they will provide substantial and sufficient public health protection for fish consumption.

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RESPONSIVENESS SUMMARY
PROPOSED REVISIONS TO HAWAII ADMINISTRATIVE RULES (HAR)
CHAPTER 11-54, WATER QUALITY STANDARDS

STATE OF HAWAII DEPARTMENT OF HEALTH
DOCKET NO. R-2-09

November 25, 2009

On March 09, 2009, the Director of Health issued a notice of public hearing and the opening of a public comment period to consider proposed revisions to sections 11-54-4(b)(3), 11-54-8(b)(1), and 11-54-8(b)(2) of the Hawaii Administrative Rules, Title 11 Department of Health, Chapter 11-54, Water Quality Standards (Department of Health, 2004). Informational meetings and a public hearing on the proposed revisions were held between November 01, 2004 and April 27, 2009. The comment period closed at 4:30 PM on April 27, 2009.

During the public comment period for this docket, No. R-2-09, written comments on proposed changes to toxic pollutant criteria [Section 11-54-4(b)(3))] were received from thirty-one individuals (including one petition with twenty-eight signatories, and one email received after the comment period closed) and two government organizations. At the public hearing, spoken comments on the proposals were received from one governmental organization and one individual. **After considering all the written and spoken comments received, the Director of Health has concluded that the proposed revisions should be adopted as proposed.**

This responsiveness summary references and addresses all comments received before the close of the public hearing and the public comment period. The comments and responses are organized below into three sections – proposed changes to toxic pollutant criteria, proposed changes to the fish consumption factor, and public participation. Comments are referenced according to the **CODE** in the right-hand column of the following table, all comments referenced in the table are written comments (except as otherwise noted), and all written comments received are attached.

## CONTENTS

**Table 1 - Comments Received for State of Hawaii Department of Health Docket No. R-2-09 March 09, 2009 - April 27, 2009**

| Comment No. | Submitted by | Affiliation | Representing (CODE) |
|---|---|---|---|
| 1. | Twenty-eight signatories | Residents and visitors to the island of Maui | **Petitioners** |
| 2. | Ross Tanimoto (written and spoken) | City and County of Honolulu Department of Environmental Services | City and County of Honolulu Department of Environmental Services (**CCH**) |
| 3. | Tahzay Jones | Tahzay Jones, Aquatic Ecologist | Tahzay Jones (**TJ**) |
| 4. | Robin S. Knox (written and spoken) | Robin S. Knox | Robin S. Knox (**RSK**) |
| 5. | Janet Hashimoto | U.S. Environmental Protection Agency, Region 9, Standards and TMDL Office | U.S. Environmental Protection Agency, Region 9 (**EPA**) |
| 6. | Rene Umberger (after comment period closed) | Rene Umberger | Rene Umberger |

**Comments and responses on proposed revisions to toxic pollutant criteria (pages 2-3)**

Comments: The City and County of Honolulu Department of Environmental Services supports the proposed revisions. (CCH, Comment No. 2)

Response: DOH welcomes the support.

Comments: A petition submitted by twenty-eight residents and visitors to the island of Maui opposes the proposed revisions, requesting that the criteria "be based on a cancer risk of 1 in 1 million or less" and "be based on Hawaii specific fish consumption rates that represent the exposure of higher fish consumption in general and the subsistence fishing population." (Petitioners, Comment No. 1).

Robin S. Knox does not explicitly support or oppose the proposed revisions, and requests that "DOH use the 1 in 1 million cancer risk level, and a higher Hawaii-specific fish consumption rate to reflect the local diet and risk to subsistence fishing populations." (RSK, Comment No. 3).

Tahzay Jones does not support the proposed revisions, arguing "the state has not made a clearly compelling case" for "relaxing current standards and should be able to demonstrate conclusively little to no adverse effects to humans or the environment they exist in . . . ." However, he does support adopting the acceptable risk limit at $10^{-6}$. (TJ, Comment No. 2).

Response: As observed by Tahzay Jones, and requested by Robin S. Knox and Petitioners, DOH does use the 1 in 1 million cancer risk level (lifetime excess cancer risk level of $10^{-6}$) for calculating the toxic pollutant criteria.

DOH believes it is not necessary for the toxic pollutant criteria to "be based on Hawaii specific fish consumption rates that represent the exposure of higher fish

consumption in general and the subsistence fishing population," as explained in the rationale document (Environmental Health Administration, 2009) and below.

**Comments and responses on proposed revisions to fish consumption rates (pages 3-7)**

Comments: In addition to requests that that DOH use Hawaii specific consumption rates to calculate the proposed toxic pollutant criteria (RSK and Petitioners), EPA (Comment No. 4) suggests "An explanation and rationale for the reduced [fish] consumption rate should be provided."

Response: The explanation and rationale for reducing the fish consumption rate by 2.4 g/day (grams per day), from 19.9 g/day to 17.5 g/day, is provided on pages 2 and 5-8 of the rationale document (Environmental Health Administration, 2009). This change can also be expressed in terms of pounds of fish consumed per year (lb/yr), and the maximum concentration of toxic pollutants in the fish tissue that is consumed (assuming current EPA cancer slope factors, see Equation 1, below), each associated with the 1 in 1 million cancer risk level (see Table 2).

**Table 2 - Human Consumption of Fish and Maximum Fish Tissue Concentration**
(based on current EPA cancer slope factors for chlordane and dieldrin)

| Regulatory scenario | Human consumption of fish | | Maximum fish tissue concentration (ppb)* | |
|---|---|---|---|---|
| | g/day | lb/yr | chlordane | dieldrin |
| existing fish consumption rate* | 19.9 | 16.013 | 10 | 0.22 |
| proposed fish consumption rate* | 17.5 | 14.082 | 11 | 0.25 |
| change in value, existing to proposed (Δ) | -2.4 | -1.931 | +1 | +0.03 |

* corresponding to a $1 \times 10^{-6}$ lifetime excess cancer risk

What is the impact of reducing the consumption rate on those who continue to consume at the existing rate? Because cancer risk is linearly related to the fish consumption rate, a percentage increase in the fish consumption rate, at a given level of contamination, will increase the cancer risk by the same percentage (see Office of Science and Technology, 2000). Under the proposed reduction in fish consumption rate (Δ = 2.4 g/day, or 1.931 lb/yr), the existing consumption rate (19.9 g/day, or 16.013 lb/yr) is 13.7% greater than the proposed rate (17.5 g/day, or 14.082 lb/yr) [(2.4/17.5) x 100 = 13.7]. Therefore, the lifetime excess cancer risk associated with the existing fish consumption rate (which is currently 1 in 1 million) will increase by 13.7%. In other words, the lifetime excess cancer risk level will change from 1 in 1 million ($1 \times 10^{-6}$) to 1.137 in 1 million ($1.137 \times 10^{-6}$), a factor of $0.137 \times 10^{-6}$, for people who consume:

- about 16 pounds per year of fish,
- every year for seventy-five years,
- when every pound of fish consumed has the level of toxic pollutants (ppb) associated with the proposed water quality criteria.

This is a very small and insignificant increase in excess cancer risk. For people consuming fish at ten times the existing fish consumption rate, the risk level will change from 10 in 1 million ($1 \times 10^{-5}$) to 11.37 in 1 million ($1.137 \times 10^{-5}$), and for those consuming fish at 100 times the existing rate it will change from 100 in 1 million ($1 \times 10^{-4}$) to 113.7 in 1 million ($1.137 \times 10^{-4}$).

Moreover, the degree to which the proposed water quality criteria will be a factor in this change in cancer risk is a function of the extent to which a person's fish consumption consists of fish taken from local waters. In other words, if some of the 16 lb/yr of fish that a person eats comes from out-of-state waters, the change in risk attributable to the proposed water quality criteria may be less than $0.137 \times 10^{-6}$. These risk calculations and considerations "demonstrate conclusively little to no adverse effects to humans . . . " (see TJ, Comment No. 3). Because the proposed toxic pollutant criteria for fish consumption are orders of magnitude less than those established for aquatic species protection, and are applied to longer time scales, DOH believes that the proposed criteria also demonstrate little or no adverse effects to "the environment they [humans] exist in, including flora and fauna" (see TJ, Comment No. 3). Therefore, DOH disagrees with the comment that "damage or injuries caused by relaxing these standards could open up the state to a significant litigation potential" (TJ, Comment No. 3).

The relationship between total fish consumption and the consumption of fish taken from local waters also (1) helps to explain the flaws of the fish consumption rate that was used to calculate the existing toxic pollutant criteria, and (2) justifies its replacement with the national average rate. Hudgins (1980) estimated that over an eight-year period (from 1970 to 1977), local commercial landings accounted for just 32% of the total Hawaii supply of commercial fish and shellfish (ranging annually from 21% to 46%). However, DOH used these total commercial catch figures to estimate that Hawaii residents consumed fish at three times the national average rate (Environmental Planning Office, 1989), without considering that only about 1/3 of that catch (and thus of fish consumed in Hawaii) was actually taken from state waters. This leads to a conclusion that the Hawaii specific fish consumption rate for fish taken from state waters, circa 1980, was actually about the same as the national average rate (1/3 of the total catch times three times the national consumption rate), excluding subsistence catch. Therefore, absent new data about Hawaii specific fish consumption, it is reasonable for DOH to employ the national average fish consumption rate in revising the toxic pollutant criteria.

Data are available that could be used to roughly estimate a new Hawaii-specific fish consumption factor. However, completing an effort that matches the rigor of EPA's national analysis would require sorting out (1) the similarities, differences, and cross-utility of the available data sets, (2) the consumption of local v. imported fish, and (3) the consumption of local fish across a range of human and geographic factors, which would probably require additional surveys. These results would then have to be subjected to statistical analysis of the distribution of fish consumption rates across population groups. DOH believes that such an extensive effort is not necessary, given:

(a) the large amount of fish that is imported to the state, and is supposedly consumed here. Although "the likelihood of Hawaii residents consuming more then the national average of fish is a significant possibility," so is the likelihood that, for the general population, the majority of the fish consumed is not taken from local waters (see TJ, Comment No. 3).

(b) the lack of concentrated sources of chlordane and dieldrin in areas used for subsistence fishing across the state, "especially in the outer islands . . ." (see TJ, Comment No. 3).

(c) the conservative nature of the risk factor already used for Hawaii's general population.

(d) the measures used and available for controlling chlordane and dieldrin pollution statewide, such as toxic pollutant effluent limits in water pollution control permits; limits on sediment loading provided in the water quality standards and total maximum daily loads; and funding provided by the Polluted Runoff Control and Revolving Fund programs for management practices directed at erosion and sedimentation.

(e) the process used for advising Hawaii's general population about safe fish consumption.

Even if DOH decided that an extensive effort to develop a new Hawaii-specific fish consumption standard was necessary, DOH resources alone would be insufficient. Although "[t]here is a reasonable possibility that a significant amount of fish consumption in Hawaii is not commercially derived" (see TJ, Comment No. 3), there is a lack of credible scientific data about local subsistence fish catch and consumption rates, which may turn out to be similar to rates from other areas of the country. One commenter correctly asserts that "Hawaii has year round subsistence fishing in nearshore marine environments," but no data are presented to support commenter's conclusion that the Hawaii catch is greater than "the significantly reduced national winter subsistence fishing in the rest of the United States" (see TJ, Comment No. 3). Given the seasonality of Hawaii fisheries, it may actually be the case that Hawaii subsistence catch is higher in summer than in winter, and that there is substantial winter subsistence fishing in both frozen and temperate regions of the rest of country.

DOH understands that fish intake patterns vary and that there are population groups that consume significantly greater amounts than the overall population. Based on the equations used to derive the toxic pollutant criteria for fish consumption, risk is linear with fish consumption (see RKS, Comment No. 4). For example, if fish were contaminated at a level permitted by criteria derived on the basis of a risk level of $10^{-6}$, individuals consuming up to 10 times the assumed fish consumption rate (about 141 lb/yr) would be protected at a $10^{-5}$ risk level. Similarly, individuals consuming up to 100 times the assumed rate (about 1,408 lb/year, or 3.9 lb/day) would still be protected at a $10^{-4}$ risk level. Toxic pollutant criteria derived using a $10^{-6}$ risk level reflects an appropriate risk for the general population and ensures protection for all exposed population groups within the range that EPA has long considered to be appropriate in its environmental programs (e.g., $10^{-4}$ to $10^{-6}$ incremental cancer risk). Therefore, DOH seeks to ensure that, after attainment of water quality criteria in ambient waters, no group is subject to increase cancer risks greater than the risk range that the EPA has long considered protective. DOH acknowledges that this rationale assumes that "the public is ok with higher fish consuming populations having a higher cancer risk from eating fish." Twenty-nine people commenting on this docket, and one organization commenting in 1989 on the docket that established the existing toxic pollutant criteria (Department of Health, 1989), disagree with this assumption.

As long as there is variability in fish consumption patterns among various segments of the population, one reasonable way to ensure that groups with higher fish consumption rates are

protected to the $10^{-6}$ risk level might be to establish site-specific water quality standards for the waters from which these groups take the fish that they consume. However, the necessity for any such effort should be driven by greater understanding of the actual magnitude of chlordane and dieldrin sources in areas used for subsistence fishing across the state, and the extent to which these pollutants migrate to receiving waters and bioaccumulate in the local fish tissue that is consumed by humans. DOH is not aware of any evidence that the "the potential for bioaccumulation of toxins in nearshore [Hawaii] fish" is any more or less "considerable" than in other areas of the country (see TJ, Comment No. 3). Contrary to one commenter's assertion, DOH believes that oceanic dilution is well proven, and is not the same thing as oceanic dispersion, but is rather its precursor and partner in reducing environmental risk (see TJ, Comment No. 3).

If local fish tissue concentrations are lower than those represented by the toxic pollutant criteria, as may be suspected in many areas, then the 1 in 1 million cancer risk level would be reached at a consumption rate higher than the national average, thus providing greater protection to heavy consumers under existing conditions. Because lower fish tissue concentrations are associated with lower water column concentrations, these waters would continue to be protected from further contamination by the state antidegradation policy.

DOH acknowledges that toxicity factors developed for the general population may not translate into similar levels of protection for "susceptible groups" such as pregnant and nursing mothers, infants and children, senior citizens, and people who are ill (see RSK, Comment No. 4). However, this is true across all toxic pollutant exposure pathways affecting susceptible groups—such as air, drinking water, and the global food supply—and is heightened by the interaction among pollutants. However, due to the preponderance of toxic pollutants in most sectors of the global food supply, it is also important to consider the possibility that the benefits of eating fish counterbalance the risk of cancer and other health problems, as suggested by research emerging from the Honolulu Heart Program (Rodriguez et al., 1996; Sharp et al., 1994) and similar studies worldwide (Fernandez et al., 1999; Kromhout, 1993; Nordy and Simonsen, 1987; Jedrychowski et al., 2008) (see TJ, Comment No. 3, calling this "a suspect argument").

In summary, DOH believes it is not necessary to use "a higher Hawaii-specific fish consumption rate to reflect the local diet and risk to subsistence fishing populations," because:

(1) using the national fish consumption rate and $10^{-6}$ lifetime excess cancer risk level is sufficiently conservative;

(2) the magnitude of the change in risk associated with using the national fish consumption rate, as proposed, is not large enough to justify the considerable effort that would be needed to develop Hawaii-specific fish consumption rates for the general population, subsistence fishing populations, and "susceptible groups" that may have a higher risk than the general population;

(3) existing waterbody conditions, administrative rules, regulatory policies and powers, outreach efforts, and funding programs provide for a high level of protection against the over consumption of toxic pollutants in fish tissue among all sectors of the population.

DOH believes that the proposed criteria are adequately protective. We retain the flexibility to be more protective on a site-specific basis, as appropriate. With this rule, DOH is only promulgating criteria. That is, antidegradation policies are not affected by this action. Regulated entities must still comply with existing State antidegradation policies and procedures. Also, compliance schedules are a fact-specific, facility-specific determination. All stakeholders will have an opportunity to review the facts and comment on the appropriateness of a compliance schedule for any given situation as part of the public noticing of the draft NPDES permit.

We use the best available science to guide our actions. Although California fisheries may be substantially different than Hawaii's (see TJ, Comment No. 3), the main issue for both is human consumption of toxic pollutants. We are not aware of any Hawaii-specific fish bioaccumulation factors for chlordane and dieldrin, nor for bioconcentration of these pollutants in Hawaii humans, and have explained and repaired the Hawaii-specific fish consumption factor used to develop the existing Hawaii criteria. Therefore, we see no practical alternative to relying upon the work produced largely by the State of California and EPA for promulgating the California Toxics Rule, upon which many of the nationally recommended toxic pollutant criteria are based. In implementing the toxic pollutant criteria, DOH monitors heavily polluted fisheries frequently, promptly warns the public of known risks, carefully regulates sewage treatment and disposal, and vigorously enforces our water pollution control laws.

**Equation 1 Calculation of Maximum Fish Tissue Concentrations**
(for chlordane and dieldrin at two different fish consumption rates)

To compare the fish tissue level corresponding to a $1 \times 10^{-6}$ excess cancer risk at two different fish consumption levels, equation one is used (EPA, 2000).

$$C_m = \frac{ARL * BW}{CSF * CR}$$

$C_m$=concentration of a chemical contaminant in fish
ARL=maximum acceptable individual lifetime risk level=$1 \times 10^{-6}$
BW= Body Weight (kg)=70 kg
CSF=cancer slope factor (chlordane=0.35 and dieldrin=16)
Consumption Rate=kg/day (0.0199 kg/day or 0.0175 kg/day)

**Chlordane Calculation**

(0.000001/0.35)X70 kg/0.0199 kg/d=0.010 mg/kg=**10 ppb**

(0.000001/0.35)X70 kg/0.0175 kg/d=0.011=**11 ppb**

**Dieldrin Calculation**

(0.000001/16) x 70 kg/0.0199 kg/day=0.00022 mg/kg=**0.22 ppb**

(0.000001/16) x 70 kg/0.0175 kg/day=0.00025 mg/kg=**0.25 ppb**

**Comments and responses on public participation (pages 8-10)**

Comments: Robin S. Knox comments that "Public information and public Participation have been inadequate ..." and requests "additional public information efforts for this and future rulemaking ..." that "clearly communicate whether changes pose an increase, decrease, or no change in risk to ... subsistence fishing communities." (RSK, Comment No. 3). EPA (Comment No. 4) commented that "...any proposed amendments that result from the April 27, 2009 hearing must be clearly presented to the public and the public must be offered the opportunity to comment. Notice of these amendments must be given in an obvious manner."

Response: The legal requirements of public notice and comment were met. The amendments proposed in Docket No. R-2-09 were the subject of the publicly advertised April 27, 2009 hearing, and the result of that hearing has not changed the proposal.

The following Public Participation Chronology illustrates the scope of DOH public information and participation efforts, how notice of these amendments was given, how the proposed amendments were presented and change in risk was communicated, and how the public was offered the opportunity to comment. Based on this illustration, the Department of Health concludes that public information and public participation activities were adequate, and consistent with federal requirements. Additional public information efforts to be conducted for this rulemaking will be limited to e-mail broadcasts announcing the submittal of the State's revisions for EPA review and approval. The Department of Health further concludes that notice of these amendments was given in an obvious manner, the proposed amendments were clearly presented to the public and the change in risk was clearly communicated, and the public was offered the opportunity to comment.

**Public Participation Chronology**

Proposed Amendments to sections 11-54-4(b)(3)

Department of Health Administrative Rules Chapter 11-54, Water Quality Standards

| DATE YYYYMMDD | EVENT/COMMUNICATION |
|---|---|
| 20090309 | A Notice of Public Hearing for Docket No. R-1-09 was published on the EPO and CWB websites and in five local newspapers covering four counties statewide (copies attached):<br>• West Hawaii Today (County of Hawaii)<br>• Hawaii Tribune-Herald (County of Hawaii)<br>• Maui News (County of Maui)<br>• Honolulu Star Bulletin (City and County of Honolulu)<br>• The Garden Island (County of Kauai)<br>This Notice included a note indicating DOH's intent to "publish soon an additional notice of other proposed changes. These changes will be part of a separate docket number or numbers. These other proposed changes may be heard at the same time as the foregoing proposed changes. The additional proposed changes may involve . . . [n]ew standards for toxic pollutants based on the 2006 U.S. Environmental Protection Agency National Recommended Water Quality Criteria for Toxic Pollutants (Office of Water, Office of Science and Technology 4304T), including the applicable footnotes and appendices. Specifically included may be new standards for . . . [c]hlordane and dieldrin . . . ." |

This Notice also included a further note "that the subjects of this additional notice are already being addressed by the State Legislature in House Bill 834 and Senate Bill 1008, which can be found online with related testimony . . . , " provided a hyperlink to the appropriate website, and provided Clean Water Branch staff contact information for those desiring more information.

20090310 An email bulletin from EPO with the subject heading "Hawaii Administrative Rules 11-54 - Water Quality Standards" was sent to 47 agencies, groups, or individuals who previously agreed to review the Water Quality Standards. This bulletin requested assistance in reviewing and commenting on the changes proposed in Docket No. R-2-09, noting that "[t]he rationale for these proposed changes will be available shortly on the EPO website," and providing a hyperlink to the appropriate website. It also noted "these are preliminary proposed amendments to HAR 11-54. We have not received permission from the Governor to public notice these proposed rules (attached). The version which will be presented to the general public may be different." This bulletin asked recipients to send comments and suggestions to EPO "by Monday March 16, 2009, or earlier if possible," and provided EPO staff contact information for those having any questions.

20090313 An email bulletin from EPO with the subject heading "FW: Hawaii Administrative Rules 11-54 - Water Quality Standards" was sent to 47 agencies, groups, or individuals who previously agreed to review the Water Quality Standards. This bulletin included, as file attachments, the rule and rationale documents for Docket No. R-2-09, and requested assistance in reviewing and commenting on the changes proposed. The bulletin asked that comments be provided by March 16, 2009.

Within the rationale document, change in risk was communicated through discussion of the following:

(1) The appropriateness, implications, and assumptions associated with selecting a 1 in 1 million lifetime excess cancer risk level as the basis for the proposed toxic pollutant criteria;
(2) The similarity between and impact of the fish consumption rates used to calculate the proposed criteria;
(3) The overwhelming role of reductions in the estimated carcinogeneity of the toxic pollutants in driving reductions in the toxic pollutant criteria; and
(4) Changes in risk associated with increased fish consumption.

20090314 In reply to the email bulletin sent from EPO on March 13, 2009, Robert D. Harris sent an email to the distribution list noting "sending the rationale on Friday at 4:36 p.m. and asking for comments by Monday is not reasonable. If you want useful comments, I suggest setting a more realistic deadline."

20090318 "New Business" on the agenda for a regular meeting of the State of Hawaii Department of Business, Economic Development, and Tourism's Small Business Regulatory Review Board (posted in advance on the Review Board website, and otherwise posted in accordance with State regulations) included Item IV.A, "Review and discussion of amendments to HAR Chapter 11-54, 'Water Quality Standards' (DOH). Upon review and discussion, the Board unanimously recommended that all the proposed amendments to HAR Chapter 11-54 presented at the board meeting proceed to public hearing.

20090327 An email bulletin from EPO with the subject heading "Update on Water Quality Standards Revisions" was sent to 47 agencies, groups, or individuals who received a related previous bulletin on March 10, 2009. This bulletin provided notification of the public hearing date and

public comment deadline for Docket No. R-2-09; provided a hyperlink to the EPO website where more information about the proposed amendments, public hearing schedule, and public comment deadline could be found (this information was published on the website this same day); and requested that recipients contact our office to make other arrangements for reviewing the proposals. This bulletin offered the public the opportunity to comment by sending recommendations to the EPO office, and the hyperlinked EPO website offered the public the opportunity to comment by contacting EPO staff for additional information.

20090416 An email reminder from CWB with the subject heading "Public Notice Hearing – Monday, April 27, 2009 at 10:00 am," with the Notice of Public Hearing attached, was sent to 17 addressees. CWB sent copies of the Notice of Public Hearing and the proposed amendments via postal mail to an additional 12 addressees. CWB sent copies of the Notice of Public Hearing via postal mail and fax to an additional 2 addressees.

20090427 A Public Hearing for Docket No. R-2-09 was held simultaneously via videoconference at four locations, one in each of four counties statewide. There were 4 attendees on Oahu, one in Hilo, and three on Maui. This hearing offered the public the opportunity to comment by receiving written and verbal testimony during the hearing. Spoken testimony was received from one attendee on Oahu representing a government agency and from one citizen on Maui. Written comments on proposed changes to toxic pollutant criteria [Section 11-54-4(b)(3))] were received from thirty-one individuals (including one petition with twenty-eight signatories, and one email received after the comment period closed) and two government organizations.

**Conclusion**

The proposed revisions adequately protect human health. Even assuming that some people in Hawaii eat about four pounds of locally-caught fish per day, their lifetime excess cancer risk is still within the $10^{-4}$ risk level that EPA deems acceptable for highly exposed populations (Office of Science and Technology, 2000). The DOH is choosing a risk level that is within EPA's range of recommendations, and we understand that this type of choice generally facilitates EPA approval of state water quality standards decisions. We further understand that the EPA recommendations do not impose legally-binding requirements on the state (Federal Register Vol. 65, No. 214).

In the nineteen years since the current state toxic pollutant criteria were adopted, the Department has not seen any reliable scientific evidence to suggest that public health will be compromised by the proposed changes. In other jurisdictions, adoption of the higher federally-recommended criteria has not been shown to result in an increased incidence of cancer after consumption of fish taken from states' surface waters. Over twenty years of new scientific knowledge about the cancer potency of chlordane and dieldrin has lowered our confidence in the previous DOH risk-based decision that established the existing toxic pollutant criteria. Based on the multiple lines of evidence presented in support of our proposed changes to the criteria, we conclude that the difference between the existing and proposed criteria, and between the existing and proposed fish consumption rate, does not represent a measurable change in public health risk, does not constitute a significant public health concern, and does not lower water quality.

DOH will further assure compliance with anti-degradation policy by maintaining existing requirements for sewage treatment and discharge location and by continuing to otherwise regulate and control point and nonpoint sewage sources. The proposed changes to toxic pollutant criteria will (1) maintain and protect existing uses and the level of water quality necessary to protect the existing uses, (2) maintain and protect the quality of water where it exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, and (3) maintain and protect the quality of water where high quality waters constitute an outstanding natural resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance (State of Hawaii, 2004, HAR §11-54-1.1). Therefore, after consideration of all comments, DOH believes that the proposed criteria are protective, scientifically defensible, meet the requirements of the Clean Water Act, and make sense for people eating fish taken from Hawaii waters.

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PETITION TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND HAWAII DEPARTMENT OF HEALTH
RE: WATER QUALITY STANDARDS REVISIONS DOCKET NO. R-1-09 AND DOCKET R-2-09
AND TO THE HAWAII STATE LEGISLATURE
RE: WATER QUALITY STANDARDS REVISIONS SB1008 AND HB834

We, the undersigned residents and visitors to the Island of Maui, HI do petition the US Environmental Protection Agency (EPA) and Hawaii Department of Health (DOH) to take the following actions in regards to proposed revisions to the state water quality standards:

1. We support Docket No, R-1-09 changes to correct the typographical error in the chlordane criteria;
2. We oppose Docket No, R-2-09 proposed change of chlordane and dieldrin standards to the federal criteria.
3. We request that the Hawaii Water Quality standards include chlordane and dieldrin criteria developed specifically for Hawaii
4. We request that human health water quality standards for toxic chemicals (including chlordane and dieldrin) be based on a cancer risk of 1 in 1 million or less,
5. We request that human health water quality standards for toxic chemicals (including chlordane and dieldrin) be based on Hawaii specific fish consumption rates that represent the exposure of higher fish consumption in general and the subsistence fishing population,
6. We oppose Docket Nos, R-109 and R-2-09 proposed change of bacterial standards from the state standards to the higher federal criteria for Enterococcus.
7. We request the development of water quality criteria specific to the level of exposure of recreational users in Hawaii and that address skin, eye, ear and respiratory infections in addition to gastrointestinal illness.

We, the undersigned residents and visitors to the Island of Maui, HI do petition the state legislature not to adopt the revisions to water quality standards proposed by Senate Bill 1008 and House bill 834.

1. These revisions are numerous and technically complex. The DOH has not provided adequate public information regarding the water quality benefits and socioeconomic justification for changes.
2. The public information and public participation requirements of the Clean Water Act have not been complied with.
3. We request the legislature delay action until such time as all proposed water quality standards revisions have undergone appropriate public discourse in compliance with state and federal environmental laws.

NAME ADDRESS DATE

PETITION TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AND HAWAII DEPARTMENT OF HEALTH
RE: WATER QUALITY STANDARDS REVISIONS DOCKET NO. R-1-09 AND
DOCKET R-2-09
AND TO THE HAWAII STATE LEGISLATURE
RE: WATER QUALITY STANDARDS REVISIONS SB1008 AND HB834

| NAME | ADDRESS | DATE |
|---|---|---|
| Ananda Stone | 1595 Kuuipo St. Lahaina, HI. 96761 | 4/25/09 |
| Liz Forte | 160 Kindai lan Loop Wailuku HI 96793 | 4/25/09 |
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| Harald Lincke | Mililani, HI | |
| Joshua Wittmer | 11 Luanaiki Pl. Kihei, HI 96753 | 4/25/09 |



2910

PETITION TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AND HAWAII DEPARTMENT OF HEALTH
RE: WATER QUALITY STANDARDS REVISIONS DOCKET NO. R-1-09 AND
DOCKET R-2-09
AND TO THE HAWAII STATE LEGISLATURE
RE: WATER QUALITY STANDARDS REVISIONS SB1008 AND HB834

| NAME | ADDRESS | DATE |
|---|---|---|
| [illegible] | PO Box 2300 Kihei HI 96753 | April 26, 2009 |
| Timothy Morgans | 808 Aviiki Way Haiku, Hi | April 26, 2009 |
| Ane Takaha | 3378 Keha dr Kihei, Hi 96753 | 4/26/09 |
| Marc Takaha | 3378 Koha Dr. Kihei, HI 96753 | 4/26/09 |
| Joe Maestre | 728-A Kupulau Dr Kihei HI- 96753 | 4/26/09 |
| Heather Parsons | 540 Kaiapa Pl. Haiku HI 96708 | 4.26.09 |
| Robert Parsons | (same as above) | 4-26-09 |
| SHARON MARVEL | 745-A KUPULAU, KIHEI. 96753 | 4/26/09 |
| Alisia Miller | PO Box 1902 Kahului, Hi 96733 | 4/26/09 |
| Jim Freeheart | 480 Kenolio Rd #3-205 Kihei Hi 96753 | 4/26/09 |

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TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

MANUEL S. LANUEVO, P.E., LEED AP
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:

**PUBLIC HEARING ON WATER QUALITY AND WATER POLLUTION RULES**
**DEPARTMENT OF HEALTH**
**STATE OF HAWAII**
**10:00 A.M., Monday, April 27, 2009**
**5th Floor Conference Room**
**919 Ala Moana Boulevard, Honolulu**

**Testimony of Ross S. Tanimoto**

Dr. Fukino and Ladies and Gentlemen of the Department of Health

My name is Ross Tanimoto. I am the Deputy Director of the Department of Environmental Services for the City and County of Honolulu. We support the proposed revisions to the Hawaii Administrative Rules, Title 11, Department of Health, Chapter 54, Water Quality Standards. The City has been working with DOH for an extended period of time on these updates, which the City believes are long overdue. We also concur with the DOH Rationale, which is consistent with information and data obtained by the City.

Regarding the matter of fish consumption, a paper produced by the Marine Fisheries in 1980 reported that foreign and domestic imported fish represented a large proportion of the fish consumed in Hawaii.

Ross S. Tanimoto

ROSS S. TANIMOTO

2910

GF130.53(1)
GF130.54(b) 4/29/09

Po Box 52
HI Nat'l Pk, Hi 96718
808-985-6188
808-985-6111

**Comments to Review**

# Fax

| | | | |
|---|---|---|---|
| **To:** | Clean Water Branch | **From:** | Tahzay Jones |
| **Fax:** | 808-586-4352 | **Pages:** | 4 |
| **Phone:** | | **Date:** | 4/27/09 |
| **Re:** | Comments on proposed water quality standards changes | **cc:** | |

☐ **Urgent** X **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

These are my written comments on the proposed Water Quality Standards changes. I have sent the original copy through the mail which should arrive shortly. Nevertheless, as today at 4:30 pm is the time comments can be accepted, I have faxed my comments to you as per instructions from DOH personnel in the Hilo office. I thank you for taking the time to review my comments and look forward to seeing the new regulations proposed based on public comment. Please feel free to contact me regarding this issue. Thank you for your time a diligence in keeping our waters safe.

Sincerely,

Tahzay Jones

Tahzay Jones
PO Box 52
Hawaii National Park, HI, 96718
April 27, 2009

Clean Water Branch
Environmental Management Division
Hawaii State Department of Health
919 Ala Moana Blvd, Rm 301
Honolulu, HI 96814-4920

Dear Clean Water Branch:

I would like to submit comments regarding the proposed changes to the Hawaii State Water Quality Standards as described in the "Rationale for the Proposed Revisions to Department of Health Water Quality Standards" (3/18/09 version):

**Part II "Existing and Proposed Toxic Pollutant Criteria"**

I fully support changes adopting the addition of 26 new priority toxic pollutants to the water quality standards, as well as the addition of new aquatic life and human health criteria in existing standards that do not have them already. I also support making the water quality standards more stringent in the aquatic life and human health criteria in existing standards.

I do not support less stringent standards for existing criteria. The state should make a compelling case for relaxing current standards and should be able to demonstrate conclusively little to no adverse affects to humans or the environment they exist in, including flora and fauna. I will discuss this further in Part III; however, the state has not made a clearly compelling case in this section. I believe that damage or injuries caused by relaxing these standards could open up the state to a significant litigation potential.

**Part III "Rationale for Proposed Revisions to Toxic Pollutant Criteria"**

In Part A, I support changes that would adopt terminology consistency.

In Part B, The lack of adequate data on human consumption of fish and shellfish is somewhat disturbing. However, adopting the more conservative acceptable risk limits set by the EPA at $10^{-6}$ is appropriate and I support this, but I do not support any less stringent risk factor levels. It is important to note, that the likelihood of Hawaii residents consuming more than the national average of fish is a significant possibility. Hawaii has year round subsistence fishing in nearshore marine environments throughout the state and especially in the outer islands as compared

to the significantly reduced national winter subsistence fishing in the rest of the United States.

There is a reasonable possibility that a significant amount of fish consumption in Hawaii is not commercially derived. Furthermore, the potential for bioaccumulation of toxins in nearshore fish is considerable. Though the Hawaiian islands are remote in the Pacific, oceanic dilution, until proven should not be assumed. There is literature documenting longshore currents and their capabilities at retaining waste nearshore as opposed to transporting out into the open ocean, making communities deriving a significant portion of the food resources from nearshore oceanic environments potentially at greater risk. It is also a suspect argument to state that the health benefits of eating fish counterbalance the risk of cancer. Finally, California's fisheries are substantially different than Hawaii's fisheries making a recommendation to adopt criteria based on their work questionable unless no other Hawaii criteria exists, regardless of when it was developed.

In Part C, I support the six proposed more stringent criteria and the adoption of three new criteria for Aquatic Life. I do not support less stringent standards for the other four criteria. The State clearly points out that there are few Hawaiian species represented in the research used to derive these criteria. Lessening any criteria without some compelling scientific evidence, which the state has not (nor will it be capable of in the near future) provided is questionable. Furthermore, the state does not present any economic reasons for relaxing the standards (though they do for not collecting the criteria necessary to evaluate the standard – and it is a justifiable and reasonable argument).

**Part IV "Existing and Proposed Designation of Coastal Resource Waters"**

I support excluding areas where recreational activities are prohibited as it makes no sense to designate an area as recreational that is clearly not. I also support an increase in the horizontal reach of recreational waters to 500 m. However, I do not support the designation of a depth limit on coastal recreational waters. The state has not made a sound case for exclusion of water below 33 m.

**Part V "Rationale for Designation of Coastal Recreation Waters"**

I support Part A prohibited areas as areas that are prohibited from recreational use should not adhere to recreational guidelines.

I do not support Part B, 33m depth rule change. The state makes the case that confusion and inconsistency are a driving factor in this decision; however, this change does not address any of the illustrative examples the state claims as confusing. Furthermore, the state makes the case that dangerous activities occur

below 33 m that create more significant risk than bacterial counts. However significant the risk is at activities below 33 m, there is no compelling reason that the activities should be made even more risky by the relaxing of the water quality standards in which these activities are occurring. If bacterial counts indicate a health concern, that should apply wherever people are recreating, regardless of the inherent danger of the activity they propose to engage in.

In Part C, I support the increase in the designation of recreational waters to 500 m. I believe the state makes a compelling case for extending the designation.

**Part VI "Existing and Proposed Specific Criteria for Marine Recreational Waters"**

I support the relaxing of the bacterial counts in marine recreational waters if the state has determined that the potential litigation risk associated with people becoming ill from recreating in waters that previously would have been outside of standards but now would be within standards is within acceptable bounds.

**Part VII "Rationale for Proposed Revisions to Specific Criteria for Marine Recreational Waters"**

I would support the increase in bacterial criteria standards for marine recreational waters. The state has made a somewhat compelling case based on cost, historical information, and ecological function. I appreciate that the state has reserved the statement that these changes would be in effect "until such time as more human-specific sewage indicators are identified and made widely available at a low cost for routine monitoring purposes". While low cost is relative, it is an acceptance of the possibility of newer technological advances. It is also important that the state does follow-up surveys for chronically impaired areas as is stated in the rationale. It would seem that as long as the state assumes the increased litigation risk associated with lessening the standards is acceptable, then I could support this change.

Thank you for allowing me the opportunity to submit my comments regarding the proposed water quality changes. These comments are my comments as a concerned citizen and my comments alone. They do not represent any official opinions whatsoever, of the organization for which I am employed. I hope that you will look further into these proposed actions based on the comments that you have received from around the state and I appreciate your diligent work in trying to keep the waters of Hawaii safe, clean, and useable for all.

Sincerely,

Tahzay Jones
Aquatic Ecologist

ROBIN S. KNOX COMMENTS TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND HAWAII DEPARTMENT OF HEALTH
RE: WATER QUALITY STANDARDS REVISIONS DOCKET NO. R-1-09 AND DOCKET R-2-09
AND
RE: WATER QUALITY STANDARDS REVISIONS SB1008 AND HB834
April 27, 2009

Mahalo to the Department of Health (DOH) for their efforts in making the opportunity for public participation more available, especially the teleconferencing set up for the Neighbor Islands. I have the following comments:

1. Public information and Participation have been inadequate. Despite the recent efforts of DOH in these areas, the public on Maui remains relatively uninformed about the proposed rule and its impacts on fishable and swimmable uses of state waters. While the DOH has made information available on the website, the multiple concurrent actions and technical and regulatory nature of the language make it difficult to understand.

   I request additional public information efforts for this and future rulemaking in order to get adequate input. The public information should clearly communicate whether changes pose an increase, decrease, or no change in risk to users such as swimmers (for recreational use, bacterial criteria) or subsistence fishing communities (in the case of human health criteria for chlordane and dieldrin)

2. Bacterial standards – Raising the concentration of the Enterococcus criteria will not solve the problems associated with the current criteria. The DOH maintains that Enterococcus bacteria multiply in tropical soils, are present in elevated levels after rain events, and therefore may be a less than ideal indicator organism. The DOH presented no evidence (i.e. data or reference to publications) in its rationale to support these assertions. In practice where Enterococcus bacteria are present due to sewage discharges, higher criteria will mean higher allowable concentration of indicator bacteria, other potentially associated pathogens and pollutants from sewage discharges. This is a degradation of water quality. The rationale for the standards change should address how the proposed changes comply with state anti-degradation policy.

   I request that DOH gather additional data before changing the criteria .Additional research is currently being undertaken by EPA to develop criteria that consider a wider range of illnesses and addresses the issue of replication in tropical soils. I request that the DOH request funds from EPA and the state legislature to support development of a Hawaii-specific criteria that takes into account the level of recreational users' exposure, the methods of sewage disposal (ocean outfalls, injection wells) and the risk of swimmers getting ill from exposure to effluents in recreational waters.

   I request that the rationale document compliance with the requirement that the Director's finding that , "after full satisfaction of the intergovernmental and

public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality the Director shall assure water quality adequate to protect existing uses" (HAR 11-54-1(b)).

3. Toxic Pollutants (including chlordane and dieldrin)

The state' rationale says it is adopting the federal standards because the state does not have the resources to develop its own. The rationale says that it is ok to use federal standards, because if you eat more fish than assumed in the federal standard, you will have higher but still acceptable risk. This rationale assumes risk is linear with fish consumption, and that the public is ok with higher fish consuming populations having a higher cancer risk from eating fish.

Because the bioconcentration factors are derived for healthy adult males, and because females, pregnant and nursing mothers, infants and children, senior citizens and people who are ill may have higher risk than healthy adult males, the proposed criteria may present a higher risk to these groups than DOH has indicated There is even greater risk if these susceptible groups consume more fish.

I request that for this and future development of human health criteria for toxic substances that the DOH use the 1 in 1 million cancer risk level, and a higher Hawaii-specific fish consumption rate to reflect local diet and risk to subsistence fishing populations.

4. I request the Department continue efforts including advance notice of rulemaking, public information dissemination, and public hearing for all of the revisions proposed in the Hawaii State Legislature including SB 1008 and HB 834. The legislative process alone is not adequate public participation to satisfy the following requirements:

- **Public Participation Requirements found at Code of Federal Regulations Chapter 40 (40CFR) Part 25;**
- **Procedures for review and revision of Water Quality Standards at 40 CFR Part 131, Subpart C;**
- **Requirements for revisions of water quality standards at Hawaii Administrative Rules (HAR) Chapter 11-54-11.**
- **Public participation requirements of Chapter 91 Hawaii Revised Statutes;**
- **General policy of water quality anti-degradation at HAR §11-54-1.1.**

ROBIN S. KNOX COMMENTS TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND HAWAII DEPARTMENT OF HEALTH
RE: WATER QUALITY STANDARDS REVISIONS DOCKET NO. R-1-09 AND DOCKET R-2-09
AND
RE: WATER QUALITY STANDARDS REVISIONS SB1008 AND HB834
April 27, 2009

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION IX**
**75 Hawthorne Street**
**San Francisco, CA 94105-3901**

April 27, 2009

Mr. Alec Wong, Chief
Clean Water Branch
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Wong:

I am writing in response to your March 6, 2009 letter transmitting public notice documents to the Environmental Protection Agency (EPA) for proposed amendments to Hawaii Administrative Rules (HAR), Chapter 11-54, Water Quality Standards, and Chapter 11-55, Water Pollution Control. Your letter presented proposed amendments contained in docket number R-1-09, which was public noticed by the Hawaii Department of Health (HDOH) in the Star Bulletin newspaper on March 9, 2009. As you know, this is the set of amendments posted on the HDOH Clean Water Branch (CWB) website.

Docket number R-1-09 contains two amendments to HAR Chapter 11-54 and one amendment to HAR Chapter 11-55. In this letter, EPA is not commenting on proposed amendments to HAR Chapter 11-55; we are only providing comments on proposed amendments to HAR Chapter 11-54. The two amendments to Chapter 11-54 include (a) correction of a typographical error in a chlordane standard, and (b) revisions to bacteria criteria (the geometric mean and single sample maximum values applicable to marine waters within 300 meters of shore) to conform to federal criteria. EPA is not opposed to either of these two amendments.

On March 27, 2009, the HDOH Environmental Planning Office (EPO) posted a notice of public hearing for docket number R-2-09 in the Star Bulletin newspaper. This notice is also available on the EPO website but is not posted on the CWB website and was not included in your March 6 letter. This notice indicates that docket number R-2-09 will be heard after docket number R-1-09. Docket number R-2-09 proposes to revise fish consumption criteria for the pesticides chlordane and dieldrin to conform to federal criteria published by the Environmental Protection Agency (EPA) in 2006. As explained in HDOH's rationale (dated March 13, 2009) supporting this amendment, EPA's 2006 criteria for chlordane and dieldrin are based on a national average fish consumption ingestion rate of 17.5 grams per person per day.

In 1990, HDOH adopted criteria for chlordane and dieldrin based on EPA's *Quality Criteria for Water* (EPA 440/5-86-01, revised May 1, 1987). At that time, EPA's human health criteria were based on a daily fish consumption rate of 6.5 grams. HDOH's rationale for the 1990 amendments includes the following:

"The EPA criteria assume a daily consumption of 6.5 grams per day. The average consumption in Hawaii, however, is about three times the national average, and the average per capita consumption of locally caught fish and shellfish is 16.0 pounds per year, or 19.9 grams per day. The proposed Hawaii fish consumption standards are based upon 19.9 rather than 6.5 grams per day, and are therefore approximately 3.1 times more stringent than the national criteria."

HDOH's current rationale for proposed revisions to chlordane and dieldrin criteria is based on EPA's estimated national average consumption rate of 17.5 grams per day. The rationale indicates this is due to the lack of adequate current fish consumption data for Hawaii. This rationale contradicts the consumption rate of 19.9 grams per day adopted by HDOH in 1990. An explanation and rationale for the reduced consumption rate should be provided.

Both public notices contain a note indicating that HDOH intends to publish an additional notice of other proposed changes which may be heard at the same time as the proposed changes described in docket numbers R-1-09 and R-2-09. Although we have concerns about the additional proposed changes, we are not commenting on them because they are only under consideration by a part of HDOH at this time. Furthermore, any proposed amendments that result from the April 27, 2009 hearing must be clearly presented to the public and the public must be offered the opportunity to comment. Notice of these amendments must be given in an obvious manner. The stepwise manner currently used for proposing various packages of amendments through various routes is confusing.

Both public notices provide links to Senate and House bills revising Hawaii's water quality standards. We are not commenting on those bills or any proposed bills that come before Hawaii's legislature. However, several of these proposals raise potential concerns regarding consistency with current regulations, such as the Clean Water Act, BEACH Act, and/or their implementing regulations.

Please do not hesitate to contact me at (415) 972-3452 if you would like to discuss these issues.

Sincerely yours,

Janet Hashimoto

Janet Hashimoto
Chief, Standards and TMDL Office

cc: Kelvin Sunada, HDOH EPO

**EPO**

**From:** Koch, Linda A
**To:** EPO
**Cc:**
**Subject:** FW: Loosening HI WQS
**Attachments:**

**Sent:** Thu 4/30/2009 12:40 PM

# LATE TESTIMONY

**From:** Rene Umberger [mailto:octopus@maui.net]
**Sent:** Thursday, April 30, 2009 11:45 AM
**To:** Koch, Linda A
**Subject:** Loosening HI WQS

Aloha Ms. Koch,

Thank you for considering late testimony on the proposed WQS for Hawaii.

1. There has not been adequate notice to the public soliciting comments.
2. Hawaii's WQS should not be loosened in any way: the rates of staph infections are already the highest in the nation; our coral reefs cannot withstand any additional pressures like those that may come from increased nutrients if the standards are loosened.

Mahalo for considering these issues,

Rene Umberger

266 Alaume St.

Kihei, HI 96753

*Note: The commenter did not contact Linda Koch to accept this late testimony. No acceptance of late testimony was given.

Amendments to and compilation of chapter 54, title 11, Hawaii Administrative Rules, on the Summary Page dated DEC -1 2009 were adopted on DEC -1 2009 following a public hearing held on April 27, 2009, after public hearing was given in the Honolulu Star-Bulletin, West Hawaii Today, The Garden Isle, The Maui News, and the Hawaii Tribune-Herald on March 27, 2009.

The adoption of chapter 11-54 shall take effect ten days after filing with the Office of the Lieutenant Governor.

CHIYOME LEIMOMI FUKINO, M.D.
Director of Health

LINDA LINGLE
Governor
State of Hawaii

Dated: _____

Filed

'10 JAN 25 A9:25

APPROVED AS TO FORM:

EDWARD G. BOHLEN
Deputy Attorney General